

MONTHLY LABOR REVIEW

U.S. Department of Labor
Bureau of Labor Statistics
May 1983

JUN 15 1983

In this issue:
articles on
employment of older workers,
import and export prices, and
employee health coverage





U.S. DEPARTMENT OF LABOR
Raymond J. Donovan, Secretary
BUREAU OF LABOR STATISTICS
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The Monthly Labor Review is published by the Bureau of Labor Statistics of the U.S. Department of Labor. Communications on editorial matters should be addressed to the Editor-in-Chief, Monthly Labor Review, Bureau of Labor Statistics, Washington, D.C. 20212. Phone: (202) 523-1327.

Subscription price per year —
 \$26 domestic; \$32.50 foreign.
 Single copy \$5, domestic; \$6.25, foreign.
 Subscription prices and distribution policies for the Monthly Labor Review (ISSN 0098-1818) and other Government publications are set by the Government Printing Office, an agency of the U.S. Congress. Send correspondence on circulation and subscription matters (including address changes) to:
 Superintendent of Documents,
 Government Printing Office,
 Washington, D.C. 20402

Make checks payable to Superintendent of Documents:

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through April 30, 1987. Second-class postage paid at Washington, D.C. and at additional mailing addresses.

ISSN 0098-1818

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May cover:

Cover illustration from the book, *The Log of a Cowboy*, by Andy Adams, published by Houghton, Mifflin Company in 1903, part of *The American Cowboy* exhibition (see page 2). Courtesy Library of Congress.

Cover design by Richard L. Mathews,
 Division of Audio-Visual Communication Services,
 U.S. Department of Labor

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MAY 1983
VOLUME 106, NUMBER 5

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

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Labor Month In Review



THE AMERICAN COWBOY. Although cowboys never have made up more than a tiny portion of the U.S. labor force, their life and work is more celebrated in song, film, legend, literature, art, and advertising than any other occupation. A new exhibition, assembled by the American Folklife Center of the Library of Congress, documents America's century-long fascination with the cowboy with 370 paintings, posters, books, recordings, film clips, artifacts, and other items. The following excerpts are drawn from the exhibition's catalog.

The myth. The exhibition traces the growth of the cowboy myth from the dime novels of the 1870's to the fashion crazes of the 1980's and contrasts it with the reality of cowboy life, both in the 19th century and today. It demonstrates that Americans since the 1880's have projected their own current values on the cowboy, and turned him successively into a performer and entertainer, a moralist, a salesman, a counterculture hero, and a fashion plate.

The reality. The range cattle industry began, matured, and collapsed in the space of the 20 years between 1866 and 1886. In that short time, nearly 9,000,000 cattle were driven in trail herds from Texas to shipping points in Kansas and new grazing ranges on the northern plains. The industry had its origin in the new market for beef created in Eastern cities by methods of refrigeration and packing that made it possible to transport cuts of beef to retail markets and store them. The industry collapsed in the late 19th century when overproduction caused the price of beef to fall, and bad weather and depleted range grass took their toll on the cattle.

A single generation of Americans,

who were born before the Civil War and grew to maturity in the 1870's and 1880's, was responsible for creating a new popular hero, symbolizing an old American ideal: unrestrained personal freedom. There were probably not more than 50,000 cowboys in the United States during the cattle boom.

Although the cowboy myth holds that the cowboy is a white Anglo-Saxon, in reality many of the cowboys were black or brown. Texas, the source of so many cowboys, was a slave State, and the coastal counties where cattle were raised in Texas before the Civil War had large slave populations. And the Mexican vaquero (or herdsman) was the direct ancestor as well as the constant companion of the Texas cowboy.

The daily reality of the cowboy was work. In the summertime, it was hot, dusty, bonebreaking work, lasting always from 10 to 14 hours a day. It was cyclical and seasonal and basically divided into four phases: the spring roundup, the summer trail drive, the fall roundup, and winter ranch work, when few cowboys were employed.

The image. The cowboy first appeared to the American public as an unfocused image, a mixture of plainsman, bandit, and vaquero. Long before he was in evidence, the West and western characters had been a subject for American writers. These earlier figures began to merge into the cowboy in the dime novels and popular literature of the 1870's and early 1880's. Dime novels dealt in high adventure, miraculous escapes, and impossibly complex plots. The cowboys were usually young, handsome, and upright and spent their time rescuing maidens from Indians. In the late 1870's and early 1880's, another image of the cowboy began to take shape in the East: that of the cowboy as a rowdy,

dangerous, lawless, reckless individualist, who was constantly armed with a pistol and ready to use it. The romantic image of the cowboy first appeared in popular magazines in the early 1880's in illustrations emphasizing the cowboy's youth, his high spirits, and, sometimes, his loneliness.

The present. Fences, windmills, and winter feeding were vital parts of the reorganization of the range cattle industry that took place after the collapse of the cattle boom in 1886. Further changes occurred during the first 40 years of the 20th century, including transport of animals by trailer, the practice of modern veterinary medicine, improved breeds of cattle, and the availability of part-time "dude" labor. Although there have been continual improvements in technology, the basic rhythm of the range cattle industry in the Great Basin is much the same as it was in the late 1930's. There are still roundups and brandings, and short trail drives still take cattle from summer range to winter pasture. Cattle are still worked on horseback, and, finally, the main object of the cowboy's attention is still the cow.

The exhibition, supported by a gift from United Technologies Corporation, will be at the Library of Congress until Oct. 2, after which it will travel to San Antonio, Tex. (Dec. 1, 1983 to Jan. 31, 1984); Denver, Colo. (Mar. 7 to Apr. 29, 1984); Calgary, Alberta (June 5 to July 29, 1984); and San Jose, Calif. (Sept. 3 to Oct. 26, 1984).

The 228-page color catalog, prepared by the exhibition's curators, Lonny Taylor and Ingrid Maar, is available (\$18.95, plus \$2 for postage and handling) from the Library of Congress, Information Office, Box A, Washington, D.C. 20540. □

The labor market problems of older workers

Older workers do not have especially high unemployment rates, but when they become unemployed, they are less likely to find a job, and more likely to leave the labor force in discouragement

PHILIP L. RONES

The problem of older worker unemployment has rarely been addressed by researchers and only recently has become evident in the press. This has been the case because older workers tend to have lower unemployment rates than those found in the overall population as a whole and because other subjects related to the older worker—particularly the steady decline in retirement age—are considered “hotter” research topics with more profound policy implications.

This article investigates several aspects of labor market problems among older workers age 55 and over.¹ Its purpose is not only to show the degree of actual unemployment experienced by the older worker but also to examine the phenomenon of labor market discouragement in relation to age. Particular attention will be placed on the outcome of an older person’s unemployment experience, focusing on the duration of unemployment and the probability of a successful job search.

It is important to note that most older people, particularly the large majority of their population who are outside the labor force, do not want a job. For most, retirement is either the desired reward for many years of work, a necessary result of declining health or both. The concern here is the labor market problems of

those older persons who do—or might want to—seek work.

Unemployment

Unemployment rates for men and women in three age groups are shown in table 1.² Prior to the late 1960’s, the unemployment rates for the two groups of older men (55 to 64 and 65 and over) tended to be slightly *higher* than those for men in the “prime working ages” of 25 to 54. This relationship began to change in the early 1970’s, when the 55- to 64-year-olds showed *relative* improvement and by the 1980 recession, the rates for men age 65 and older fell well below those for men age 25 to 54. The precise causes of these apparent improvements in unemployment status of older workers relative to younger ones are not easy to determine, but they likely include the following:

- Older men who continue to work are considerably less likely than are their younger counterparts to be found in cyclically sensitive industries, such as durable goods manufacturing and construction. Thus, when those industries are hard-hit by recessions, the effects are felt more by younger or middle-aged workers than by older ones.
- Industries most prone to layoff are often those where collective bargaining agreements protect senior work-

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Table 1. Official unemployment rate and unemployment rate including discouraged workers, by sex, selected ages, 1968 to 1981, annual averages

[In percent]

Year	Men						Women					
	Age 25 to 54		Age 55 to 64		Age 65 and over		Age 25 to 54		Age 55 to 64		Age 65 and over	
	U ¹	U+D ²	U	U+D	U	U+D	U	U+D	U	U+D	U	U+D
Total ³	3.7	3.9	3.0	3.5	3.6	6.7	5.5	6.6	3.4	4.9	3.6	8.2
1968	1.7	1.8	1.9	2.3	2.8	6.6	3.4	4.5	2.2	4.2	2.7	8.6
1969	1.6	1.7	1.8	2.1	2.2	5.1	3.5	4.4	2.2	3.5	2.3	7.4
1970	2.8	2.9	2.8	3.1	3.3	5.5	4.5	5.5	2.7	4.1	3.1	7.3
1971	3.5	3.7	3.3	3.7	3.4	5.8	5.3	6.7	3.3	4.7	3.6	7.9
1972	3.1	3.2	3.2	3.6	3.6	6.2	4.9	6.2	3.3	4.8	3.5	7.8
1973	2.5	2.7	2.4	2.8	3.0	6.0	4.4	5.5	2.8	4.0	2.9	5.6
1974	3.1	3.2	2.6	2.9	3.3	6.0	4.9	5.9	3.2	4.6	3.6	7.6
1975	5.7	5.9	4.3	4.9	5.4	9.0	7.5	9.1	5.1	6.9	5.0	9.4
1976	4.9	5.2	4.2	4.7	5.1	8.9	6.8	8.1	4.9	6.4	5.0	9.9
1977	4.3	4.5	3.6	4.1	5.2	9.1	6.4	7.8	4.4	6.1	4.7	10.8
1978	3.5	3.7	2.8	3.3	4.2	7.2	5.5	6.5	3.2	4.6	3.8	9.3
1979	3.4	3.6	2.7	3.3	3.4	6.1	5.2	6.1	3.2	4.3	3.3	7.4
1980	5.1	5.4	3.4	3.9	3.1	6.5	6.0	7.0	3.3	4.6	3.1	7.4
1981	5.5	5.8	3.6	4.2	2.9	6.3	6.3	7.5	3.8	5.6	3.6	8.0

¹ U is the official unemployment rate, calculated by dividing total unemployment by the civilian labor force.

² U + D is the unemployment rate which counts all discouraged as unemployed—it divides the unemployed plus discouraged workers by the civilian labor force plus discouraged workers.

³ The totals are weighted averages of the 14 years, 1968 through 1981. They were calculated by summing the numerators for all years and dividing this by the sum of the denominators.

ers from layoff. This may not be entirely to their advantage because those who are last to be laid off must compete in a job market where most available jobs have already been taken by those workers who were laid off earlier.

- For those eligible for pensions or social security, labor force withdrawal is a more viable alternative to a prolonged job search than it is for younger persons, who are less likely to have alternative sources of income.
- During periods of high unemployment, many firms, to avoid laying off younger workers or to save on labor costs, provide their older workers with financial inducements to retire, in the form of improved pension terms or bonuses. Those who choose these options may themselves avoid layoff as a recession deepens and more senior employees are affected.

But while the unemployment rates of older workers may have been less affected by recent recessions, their relatively low rates of unemployment may mask the linked problems of unsuccessful job search once unemployment occurs and job market alienation (often stemming from that job search) that leads to labor force withdrawal. These problems will be discussed in detail in this article. In general, however, for the 1968 to 1981 period, the rates of unemployment among men in the older groups have been little different from those in the prime-aged group.³ (See table 1.)

In contrast to men, the unemployment rate for older women has been consistently several points below that

for the 25- to 54-year-old group. Among the major reasons for these low rates is that older women workers, as a group, have not had the strong career-orientation prevalent among younger women today. This marginal attachment often leads to labor force withdrawal when job loss occurs or to postponement of job search during poor job markets. Those older women who have had a permanent, full-time job market commitment are even less likely than older men to be in cyclically sensitive jobs and are often protected from job loss by their seniority.

Even though older men experience rates of joblessness similar to those of all but the youngest labor force members, it could still be argued that their unemployment problem is less severe than for those in the central ages. This is because unemployment rates are calculated by dividing the number of unemployed persons in a particular group by that group's civilian labor force (those working and those actively looking for work). The rates do not reflect the proportion of a particular population that is unemployed, but rather, the proportion of the labor force. This is particularly relevant with regard to older persons, especially those age 65 and over, because so few of them are in the labor force (fewer than 1 in 5 men and 1 in 12 women in 1981). Thus, in absolute numbers, or as a proportion of the older population, unemployment is relatively small. On average, in 1981, only four-tenths of one percent of the population age 65 and over was unemployed, compared to 2.0 percent for those age 55 to 64 and 4.6 percent for those age 25 to 54. (This is not to imply that the population-based rate is a better way of looking at unemployment—clearly it is not. Rather, this is simply another way to demonstrate the relative magnitude of unemployment among older persons.)

Reasons for unemployment

The conditions which lead to job search can differ markedly between labor force groups. Between ages 55 and 64, the reasons men experience unemployment are similar to those for 25- to 54-year-olds. (See table 2.) In 1981, about 7 in 10 unemployed persons in these age groups were looking for work because they had lost their jobs through layoffs, firings, plant closings, or other types of involuntary separations.

The difference between these two age groups of men is in the mix between the other two reasons for unemployment—quitting a job to look for another and reentering the labor force after a period of absence. The older the worker, the less likely he is to quit his job and look for a new one. This undoubtedly reflects the relatively high costs of such a decision for a person in long-term service with an employer. Experienced workers often represent a considerable investment on the part of the firm in job-specific skills—skills which the present

employer would pay to retain but which are likely to be less valuable to a new employer. Thus, in many cases, the long-term employee may face a cut in earnings in a new job. Other considerations include a loss of seniority, with its protection from hours reductions or layoffs during periods of slack demand, and loss of accrued pension benefits.

For men age 65 and older, labor force reentry approaches job loss as the main reason for unemployment. This should be expected, because the potential pool of labor force reentrants—those outside the labor force—includes over four-fifths of their population. Among job losers, those on layoff represent a far smaller portion than they do for other age groups. This reflects the relative protection from layoffs generally afforded senior workers, and also, the relatively few jobs that men age 65 and older hold where they would be subject to formal layoffs. (Comparatively few men in this age group still work in layoff-prone industries, particularly manufacturing and construction.)⁴

Older unemployed women are less likely to be job losers than are younger women, whether by layoff or other type of job loss, although the differences are not so dramatic. Women in the older group also have a lower probability of quitting than those in the younger group, and a lower rate of reentry, particularly those age 55 to 64. Thus, among women, the higher unemployment rates for those 25 to 54 years old results from a higher probability of unemployment by each reason: job loss, quits, and reentry.

Duration of unemployment

Monthly data published by the Bureau of Labor Statistics on duration of unemployment reflect the current duration of an in-progress spell of unemployment. In other words, it is a cross-section of the unemployed prior to completion of their spells of unemployment. Table 3 shows the mean and median durations of unemployment for persons in different age groups for 1979 and

Table 3. Duration of an "in-progress" spell of unemployment, by sex, 1979 and 1981 annual averages

Age	[In weeks]			
	1979		1981	
	Mean	Median	Mean	Median
16 to 19	7.4	4.3	9.2	4.8
20 to 24	9.7	5.1	13.0	6.8
25 to 34	11.1	6.1	14.8	7.8
35 to 44	13.3	6.8	16.0	8.4
45 to 54	14.5	7.5	16.9	8.9
55 to 64	17.0	8.2	18.3	9.5
65 and over	16.1	7.8	16.0	7.0

1981. By either measure, duration consistently rises until age 65, then falls somewhat.

This in-progress spell concept, however, has limited usefulness for some types of analyses. It tells us little about the key question that needs to be addressed here: What is the duration of a *completed* spell of unemployment? In-progress spell data reflect two important biases that make them an undesirable substitute for the uncollected completed spell measure. The first is that which Stephen W. Salant and others refer to as "interruption bias."⁵ That is, given stable economic conditions, an "average" in-progress spell of unemployment is likely to be only half of its eventual completed spell. A bias in the opposite direction is "length bias"; the monthly CPS fails to pick up many short spells of unemployment that occur between survey weeks. Because these biases affect different groups differently, it is often difficult to make a meaningful comparison between demographic groups using published CPS duration data.

Based on procedures developed by Norman Bowers, a rough estimate of the average length of a completed spell of unemployment for older workers can be derived using "gross change" data from the CPS in conjunction with the regularly published CPS cross-sectional data.⁶ Because three-fourths of the CPS sample in 1 month are surveyed again the following month, it is possible to determine the likelihood of individuals changing labor force status by matching the responses of individuals in this brief longitudinal panel. Any individual can be in 1 of 3 labor force categories in the current month—employed, unemployed, or not in the labor force—and in any of the same three categories in the previous month. Thus, there are nine possible combinations of labor force status for 2 consecutive months where in each month the individual is either employed (E), unemployed (U), or not in the labor force (N):

EE EU EN
 UE UU UN
 NE NU NN

The probability of any particular labor force transition is the number of people who made any given change divided by the number of persons in the original state.

Table 2. Unemployment percentages, by reason for unemployment, by sex and age, 1968-81 averages¹

Characteristic	Total	Job losers			Job leavers	Reentrants
		Total	On lay-off	Other job losers		
Men						
25 to 54	3.7	2.7	0.9	1.8	0.4	0.5
55 to 64	3.0	2.3	0.7	1.5	0.2	0.5
65 and over	3.6	1.8	0.5	1.3	0.2	1.6
Women						
25 to 54	5.5	2.4	0.9	1.5	0.8	2.1
55 to 64	3.4	2.0	0.8	1.3	0.4	0.9
65 and over	3.6	1.9	0.7	1.2	0.3	1.4

¹ Because of rounding, and the exclusion of new entrants, row totals may not equal the total unemployment rate shown.

For example, the probability of an unemployed person remaining unemployed is $UU/U(t-1)$, where t is the current month.

An estimate of the expected duration of a completed spell of unemployment can be obtained from these labor force "flows" data.⁷ The probability of leaving, or escaping unemployment is the sum of the probabilities of going from unemployment to employment and from unemployment to not in the labor force: probability of escape ($pESC$) = $UE + UN/U(t-1)$ where E and N occur in month t and U occurs in month $t-1$. Expected duration ($E(D)$) is equal to $1/pESC$.⁸

To use this equation to estimate the duration of completed spells of unemployment, it is necessary to assume that unemployed persons, regardless of their current length of joblessness, have the same probability of escape from unemployment—that is, the probability of escape is independent of duration.⁹

The estimates computed from the above formula are based on monthly escape probabilities. A calculation of the number of weeks of a completed spell would be $E(D) = \frac{1}{pESC} \times 4.3$ where 4.3 is the number of weeks in the average month. Table 4 provides the probabilities UE , UN , and UU for men and women age 25 to 44 and 60 and over based on annual averages from 1968 to 1981, along with expected duration of a completed spell of unemployment. While the age breaks used throughout most of the rest of this analysis would be more desirable (25 to 54, 55 to 64, and 65 and over), the gross flows tabulations are not available for those age categories. The 45 to 59 age group, available in the gross change data, was left out of this analysis because it spans parts of both the older age and middle-age comparison groups used in other analysis.

For the two groups of men, the estimated duration of completed spells of unemployment are quite close. In fact, that for the group age 60 and over, on average, falls below that for the comparison group by about a week. When the pUU columns are examined ($pUU = 1 - pESC$), the cause of this result is clear; the probabilities of remaining unemployed are quite close for both age groups throughout the business cycle.

However, while the probabilities of escape are similar for the two groups, the *method* of escape is quite different. Over the entire period, the probability of an older man leaving unemployment by withdrawing from the labor force is three times that of a younger man. Conversely, the probability of ending a period of unemployment by finding employment is far higher for the younger group. For women, the probability of escape, as for men, is similar for the two age groups.

Successful job search. Because the probabilities of escape by the two different methods, UE and UN , are so different for the younger and older groups, the completed

Table 4. Probabilities of an unemployed person being employed (E), not in the labor force (N), and unemployed (U) in the following month, and the expected duration of a completed spell of unemployment, by sex and selected age groups, 1968–81 annual averages

Year	Men, 25 to 44 years				Men, 60 years and over			
	Probabilities of labor force movements			Expected duration of a completed spell (in weeks)	Probabilities of labor force movements			Expected duration of a completed spell (in weeks)
	pUE	pUN	pUU		pUE	pUN	pUU	
Total ¹ ..	.327	.089	.584	10.3	.194	.275	.531	9.2
1968 .....	.519	.096	.385	7.0	.289	.333	.377	6.9
1969 .....	.497	.105	.398	7.1	.296	.357	.347	6.6
1970 .....	.393	.074	.533	9.2	.229	.215	.556	9.7
1971 .....	.351	.084	.566	9.9	.208	.260	.532	9.2
1972 .....	.361	.096	.543	9.4	.196	.279	.525	9.1
1973 .....	.369	.111	.520	9.0	.195	.323	.481	8.3
1974 .....	.340	.088	.572	10.0	.177	.255	.567	9.9
1975 .....	.284	.075	.642	12.0	.147	.221	.632	11.7
1976 .....	.283	.085	.631	11.7	.172	.267	.561	9.8
1977 .....	.312	.087	.602	10.8	.143	.281	.576	10.1
1978 .....	.343	.097	.559	9.8	.209	.327	.464	8.0
1979 .....	.335	.102	.563	9.8	.175	.280	.545	9.5
1980 .....	.294	.084	.622	11.4	.206	.258	.535	9.2
1981 .....	.277	.092	.631	11.7	.188	.266	.552	9.6
	Women, 25 to 44 years				Women 60 years and over			
Total ¹ ..	.253	.306	.441	7.7	.193	.325	.483	8.3
1968 .....	.356	.422	.222	5.5	.274	.452	.274	5.9
1969 .....	.330	.412	.257	5.8	.296	.463	.241	6.5
1970 .....	.274	.340	.386	7.0	.211	.296	.493	8.5
1971 .....	.241	.333	.426	7.5	.188	.341	.470	8.1
1972 .....	.260	.336	.404	7.2	.172	.299	.529	9.1
1973 .....	.280	.350	.370	5.9	.246	.377	.377	6.9
1974 .....	.298	.370	.332	6.4	.222	.284	.494	8.5
1975 .....	.206	.271	.522	9.0	.153	.285	.562	9.8
1976 .....	.210	.286	.505	8.7	.142	.307	.551	9.6
1977 .....	.245	.293	.462	8.0	.165	.322	.512	8.8
1978 .....	.270	.295	.435	7.6	.177	.313	.510	8.8
1979 .....	.274	.289	.437	7.6	.172	.345	.483	8.3
1980 .....	.248	.273	.479	8.3	.202	.310	.488	8.4
1981 .....	.217	.254	.529	9.1	.171	.314	.514	8.8

¹ The total is calculated by dividing the sum of all persons with a particular pair of labor force conditions (ue, for example) using annual averages for the 14 years, by the total number of unemployed persons (annual averages) for those years: $pUE(\text{total}) = \frac{\sum_{1968}^{1981} U_{(t-1)} E_{(t)}}{\sum_{1968}^{1981} U_{(t-1)}}$ where t is the current month and $t-1$ the previous month.

spell of unemployment measure may conceal real differences in job market success. It is necessary, then, to create a measure which reflects these differences.

It is the labor force flow, UE , which is undoubtedly a better measure of labor market success than the escape rate. However, one must be careful in assuming that UN implies a failed job search. Some persons may simply have changed personal circumstances, such as poor health or home responsibilities, which represent voluntary labor force withdrawal. Nevertheless, there is a strong argument that market-related movements from U to N are probably a large portion of the total UN 's.¹⁰ Because the purpose of job search is to obtain employment, it is useful to calculate an expected duration of unemployment, for what Bowers refers to as the "persistent jobseeker." These individuals continue their job search until they obtain employment. This is obtained by removing UN from the denominator and numerator

of the completed spell calculation. Thus, using Bowers' procedure, the expected duration of a completed spell of unemployment for the persistent jobseeker is calculated as follows.¹¹

$$E(D) = \frac{pUE + pUU}{pUE} \times 4.3$$

where E(D) is the estimated duration in weeks, pUE and pUU are the probabilities of an unemployed person in period t-1 either having a job in period t or remaining unemployed, respectively, and 4.3 is the number of weeks in the average month (since duration is typically expressed in weeks).

The results, shown in table 5, reveal a very different picture than those for completed spells of unemployment shown in table 4. Eliminating labor force withdrawal as an option for ending unemployment increases the expected duration of unemployment for men age 25 to 44 by less than 2 weeks but raises it by 7 weeks for older men.

Among women, the higher probability of leaving unemployment by withdrawing from the labor force than by finding employment occurs across age groups. These lower probabilities of successful job search mean that women jobseekers will have a considerably longer duration using the persistent method rather than the escape method of calculation. The younger group of women has 4 weeks added to their expected duration, while the older group, like the men, is 7 weeks higher.

Another measure of duration. Once each year, in March, there are a series of supplemental questions in the CPS on labor force activity during the prior calendar year. These questions elicit information on the number of weeks out of the year that individuals were either

Table 5. Expected duration of a completed spell of unemployment for persistent jobseekers (those who find employment) by sex, for selected age groups, 1968-81

[In weeks]

Year	Men		Women	
	Age 25 to 44	Age 60 and over	Age 25 to 44	Age 60 and over
Total	12.0	16.1	11.8	15.1
1968	7.5	9.9	7.0	8.6
1969	7.7	9.3	7.7	7.8
1970	10.1	14.7	10.4	14.3
1971	11.2	15.3	11.9	15.1
1972	10.8	15.8	11.0	17.5
1973	10.4	14.9	8.4	10.9
1974	11.5	18.1	9.1	13.9
1975	14.0	22.8	15.2	20.1
1976	13.9	18.3	14.6	21.0
1977	12.6	21.6	12.4	17.6
1978	11.3	13.8	11.2	16.7
1979	11.5	17.7	11.2	16.4
1980	13.4	15.5	12.6	14.7
1981	14.1	16.9	14.8	17.2

Table 6. Median weeks of unemployment for all persons with unemployment experience, selected calendar years, by sex and selected age groups

Characteristic	1973	1975	1978	1981
Men				
25 to 54	8.9	14.2	11.6	13.7
55 to 64	11.3	17.1	13.7	13.6
65 and over	14.9	19.1	18.3	16.2
Women				
25 to 54	6.9	11.3	9.1	11.3
55 to 64	10.8	16.6	11.7	11.2
65 and over	8.6	19.1	14.3	13.3

looking for work or on layoff and are asked of persons who worked during the year as well as of those who did not.

The data can be easily used to obtain a median number of weeks unemployed for any demographic group.¹² It should be kept in mind that this does not correspond to the length of a completed spell of unemployment, as calculated earlier, for several reasons. First, spells may begin before the start of the calendar year or end after it, thus being "in progress" during the 1-year reference period. Particularly important is the fact that the results may reflect more than one spell of unemployment for each individual. Also, the reporting of unemployment is somewhat inconsistent, particularly for women, between the monthly CPS and the March work experience supplement.¹³

Table 6 shows the median weeks of unemployment during the 4 calendar years 1973, 1975, 1978, and 1981. These years were selected, because, at least in terms of aggregate unemployment, they represent relatively low (1973 and 1978) and high periods (1975 and 1981) in the recent unemployment experience. For men, the increase in unemployment duration with age is fairly consistent over both highs and lows in recent business cycles. The rather poor recovery for men age 65 and older by 1978 from the 1974-75 recession is consistent with other indicators of unemployment for that group.¹⁴ There is also a pattern of increased duration with age among women, although it is less consistent. Moreover, the actual differences across age groups, for women, may be somewhat less than shown, because of reporting inconsistencies discussed in footnote 13.

The use of duration data obtained from the work experience supplement reduces the problem of labor force transitions and its limiting effect on duration, because all spells of unemployment are counted. Similarly, calculations of the duration of a completed spell of a persistent jobseeker, shown in table 5, provides a comparison of job-search success between the younger and older groups unhindered by labor force withdrawal. Thus, these two calculations (work experience and persistent jobseeker), while measuring somewhat different

things, provide a similar characterization of the differences in unemployment duration between the older worker and those in the middle years.

More about the unemployed

Older unemployed persons show less of a commitment to the labor force than do their younger counterparts. For example, the CPS regularly obtains information on whether the unemployed are looking for full- or part-time work. In 1981, as shown in the tabulation below, older men and women were less likely than their younger counterparts to seek full-time jobs.

Percent of unemployed persons seeking full-time work, 1981 annual average

	<i>Age 25 to 54</i>	<i>Age 55 to 64</i>	<i>Age 65 and over</i>
Men	97	88	44
Women . .	83	79	45

In May 1976, CPS respondents who were unemployed were asked to complete a supplemental questionnaire on their job search activity and on factors which might influence that activity.¹⁵ As expected, older persons, particularly men, were considerably less likely than younger persons to seek permanent rather than temporary employment.

Percent of unemployed seeking a permanent job, March 1976

	<i>Age 25 to 54</i>	<i>Age 55 to 64</i>	<i>Age 65 and over</i>
Men	95	93	68
Women . .	82	76	57

In addition, unemployed persons were asked the number of hours they had spent looking for work during the 4 weeks prior to the survey.¹⁶

Average number of hours spent in job search during month prior to May 1976 CPS

	<i>Age 25 to 54</i>	<i>Age 55 to 64</i>	<i>Age 65 and over</i>
Men	42	33	22
Women . .	19	19	17

For men, age is a good predictor of job search intensity. For women, the amount of time spent looking for work is apparently unrelated to age and consistently lower than that for men.

Worker discouragement

While the unemployment rate is the most visible measure of labor market difficulties, other measures, such as labor market discouragement, also provide valuable in-

formation.¹⁷ (Discouraged workers are those who report that they want a job but are not looking because they believe they cannot find one.) Labor market discouragement is experienced, disproportionately, by older workers and by racial minorities.¹⁸ For blacks, it is easily assumed that this is simply another indication of their relatively poor standing in the job market. Older workers are not so obviously disadvantaged, at least as evidenced by their unemployment rates. Yet, discouragement may be a serious problem for this group and, if included in the calculations, substantially alters the relationship between older and younger worker unemployment.¹⁹

Table 1 shows unemployment rates for different age/sex groups comparing the traditional rate for each group to a new rate which adds discouraged workers to both the numerator and the denominator of the unemployment rate calculation.²⁰ As shown in the tabulation below, for men age 25 to 54, discouragement as a labor force problem is relatively minor; for men 55 to 64 years old, the problem is only slightly greater. But for men age 65 and over, the annual average level of discouraged workers is almost as large as the number of unemployed. The addition of the discouraged workers doubles the percentage for this group compared to its unemployment rate, and also raises it to levels far above those for the other two male age groups. Even in the past several years, when there was a marked improvement in the unemployment rate of men age 65 and older relative to those age 25 to 54, the addition of discouragement yields a percentage for this oldest group that is well above that for the central age group.

While labor market discouragement is more common for women of all ages, compared to men, the effect on older women of its inclusion in an "unemployment-discouragement rate" calculation is similar to that for older men. For women age 25 to 54 and 55 to 64, discouragement adds 1.2 and 1.5 points to their respective unemployment rates. But for women age 65 and over, on average, it adds 4.7 points, considerably more than the contribution of unemployment itself.

The following tabulation shows the percentage-point increases in unemployment rates of persons age 25 and over by including discouraged workers (average of 1968-81 period):

	<i>Age 25 to 54</i>	<i>Age 55 to 64</i>	<i>Age 65 and over</i>
Men	0.2	0.5	3.2
Women . .	1.2	1.5	4.7

While the effect of adding discouraged workers to the unemployed count is dramatic, these results are not necessarily easy to interpret. As mentioned earlier, older worker unemployment, when compared to their *population* (rather than labor force, as in the normal unem-

ployment rate calculation) is hardly significant. Only when their unemployment is compared to the labor force levels does joblessness appear to be nearly as serious a problem as it is for other age groups.

The use of data on discouragement presents a similar problem of interpretation. The addition of their numbers dramatically alters the relative job market standing between the oldest labor force groups and younger groups. Yet the older age groups have a huge source of potential discouraged workers that other groups do not—those who are outside the labor force. For the population age 65 and over, this group accounts for about 7 of every 8 people. Thus, even if only a very small portion of those outside the labor force are identified through the survey as discouraged, the effect on the relatively small group *in* the labor force still becomes quite large. This is, of course, what happens in the calculations. Only about 0.5 percent of all persons age 65 and older who are outside the labor force are counted as discouraged. When added in, it is enough to more than double their “unemployment rate”; a very small group in absolute terms is able to dramatically alter a measure of labor market conditions.

For purposes of this article, it may be helpful to look at certain responses of older discouraged workers in the CPS—particularly their answer to three questions:

1. What are the reasons . . . is not looking for work?

Persons identified as outside the labor force but wanting a job are asked why they have not been looking for work. Many cite such factors as family responsibilities, poor health, or school attendance, thus indicating that their personal situation makes them unavailable for work. To be classified as a discouraged worker, the individual must be reported as wanting a job and not looking for work for one or more of the following five reasons, but no others:²¹

- a. Believes no work is available in line of work or area
- b. Couldn't find any work
- c. Lacks necessary schooling, training, skills, or experience
- d. Employers think too old or too young
- e. Other personal handicap in finding a job

The first two categories are listed in Bureau publications as “job market factors;” the latter three are “personal factors.” The “job market” categories more clearly indicate some failure of the job market itself to absorb people who want to work than do the “personal” categories. As expected, personal reasons (particularly the “too old” reason) dominate the 65 and over age group, accounting for 56 percent of its discouragement in 1981. In contrast, 25 to 54 year old discouraged workers cited personal reasons less than one-fifth of the time.

2. Does . . . intend to look for work of any kind during the next 12 months?

Discouraged workers, in general, say they want jobs “now” but are not looking because they think they can't find any. Apparently, many older discouraged workers have no plans to verify their assessment of the availability of jobs. (It should be kept in mind that an individual need not take part in an active job search to acquire at least some information on the job market. Information on local layoffs or plant closings, job search by acquaintances, or local unemployment statistics might all be used to assess the likelihood of a successful job search, particularly in a relatively small job market.) In fact, in 1981, only about half of discouraged workers age 65 years and older indicated plans to look for work during the subsequent 12-month period. This compares to two-thirds of 55 to 64 year olds and 6 out of 7 of 25 to 54 year olds.

3. When did . . . last work for pay at a regular job or business, either full or part time?

Many older discouraged workers have no recent work history. In fact, in 1981, among those age 65 and over, only about 1 in 5 had worked within the previous year, while the remaining four-fifths was about split between those who had last worked 1 to 5 years ago and those whose last job was at least 5 years prior to the survey. The younger groups, of course, tend to have more recent work experience. However, even among men age 25 to 54, almost half of the discouraged workers in 1981 had not worked in the previous year. Combining the results of the job search intention and time of last job questions shows that 30 percent of all discouraged workers age 65 and over had neither worked in at least 5 years nor had any intentions of looking for work in the near future.

From these CPS questions, it is clear that the group of discouraged workers 65 and over show a quite different degree of labor force attachment than do their younger counterparts. They are less likely to cite the more definitive “job market” factors as their reason for not looking for work, they are far less likely to have had recent work experience, and often have no plans to look for work in the near future. This may reflect the more marginal labor force attachment of a group of workers who may have alternative sources of income. But it may also reflect, to some undetermined extent, a realistic perception of the lack of acceptable job opportunities for persons age 65 and older who want to work.

Interpretation of findings

Do these results demonstrate a lack of interest, or job market commitment among older persons? What do the relatively low measures of job search and interest for older unemployed and discouraged workers mean? How

are their very high levels of labor force withdrawal from unemployment to be interpreted?

The initial response may be that these results should be expected from a group of persons whose retirement alternatives often limit the amount and extent of job search. But a far different interpretation could be that much of this measured job market "indifference" is the result of a labor market which is unresponsive to the needs and preferences of the older worker.

What happens when older workers seek work? According to the UE probabilities shown in table 4, they are far less likely to find a job than are their younger counterparts. And when they do find jobs, they generally suffer a serious decline in wages compared to previous employment. Herbert S. Parnes examined longitudinal data from a sample of men who were 45 to 59 years old in 1966 and had been displaced between 1966 and 1975 from a job they had held at least 5 years.²² The results show a dramatic decline in both occupational status and earnings, compared with a matched group who had not lost their jobs. Results of a survey of over 800 retirees of three large corporations showed that the wages of those who subsequently got jobs were so low that they "provide a vivid corroboration of the assertion of a large number of respondents who said that among the reasons they did not work after retirement was that it did not pay to work."²³ Fringe benefits for these workers were practically nonexistent.

Do older jobseekers hold out for a "better" job than do younger persons? The May 1976 job search supplement asked unemployed persons their lowest acceptable wage. While the results should be viewed with caution, the average "reservation wage" of older workers was no higher than the 25-to-54-year-old group.²⁴ In fact, older workers generally take jobs in relatively low-paying trade and service industries.²⁵

A poor job market certainly may lead to labor force withdrawal (although most labor force withdrawal among the elderly is voluntary). However, for those outside the labor force, the desire to work is often difficult to measure. The CPS elicits a very low level of labor market interest among the retired elderly compared to other surveys. Part of this difference may stem from responses to the seemingly simple question, "Do you want a job?," which can be interpreted in different ways and thus yield far different results.²⁶ "No, I don't want

a job," as reported in the CPS, may mean (for some) that the jobs perceived to be available do not meet the individual's requirements, not that the individual would not take "acceptable work."

As previously stated, most older retirees do not want to work or cannot work for health reasons. But it is not unreasonable to assume that a significant number of potential workers are "hidden" from the labor market statistics because of their not in labor force status. Evidence of this potential labor supply comes from the survey of retired persons from three large corporations cited earlier. Of those retirees who were outside the labor force, 27 percent cited as their main reason for not looking for work that "it doesn't pay" (which may reflect both the low anticipated wages and poor fringe benefits from employment as well as the social security earnings limitation). Additionally, 9 percent said there were "no opportunities," 4 percent cited age discrimination, and 2 percent cited an unsuccessful job search. These responses came from a group with better than average retirement income—work is most important to retirement and near-retirement age people with low incomes or low expected pension income.²⁷

As Harold Sheppard and Sarah Rix point out in *The Graying of Working America*, many persons choose retirement "not because they want literally to retire, but more because of their strong reluctance to stay in the same dissatisfying job. The difficulties the older workers may have in finding more satisfying kinds of employment may mean that early retirement is the only alternative."²⁸ The same, of course, can be said for retirement that is not, technically speaking, early. Research reports and congressional hearings point out the need for alternative work arrangements for many older persons in order to eliminate the full-time work/total retirement choice faced by many.²⁹ Moreover, the paucity of job sharing and part time, phased retirement, or other types of flexible work options serves to lessen job search or to cause some to leave the labor force. The result, quite probably, is that the most commonly used measures of labor market success, particularly the unemployment rate, understate the difficulties that older workers face in the job market. The limited opportunities for older workers are not inconsistent with low unemployment rates—to some extent they are their cause. □

— FOOTNOTES —

ACKNOWLEDGEMENT: The author would like to express his appreciation to Stella Cromartie for her assistance in the preparation of several of the tables, and to Norman Bowers, for his work with the May 1976 CPS data tape.

¹ Ideally, the analysis presented in this article would have used a consistent definition of "older workers." However, data are not always available with the preferred age aggregations—age 55 to 64 and

65 and over for the older groups and age 25 to 54 for the comparison group of other adult workers. The gross flows data that were used to estimate completed spells of unemployment presented the largest problem. Data for different age/sex groups by duration of unemployment were needed to calculate the completed spells of unemployment and the probabilities of leaving unemployment used extensively in the article. The only available data are for persons ages 25 to 44, 45 to

59, and 60 and over. The decision was made to exclude the middle group from any analysis since they extend into both the 25 to 54 and 55 and older age groups. Thus, the age 60 and over group was used to represent the older workers, with the 25 to 44 year olds used as the comparison group. The preferred age groups were used for all other analysis.

² Unless otherwise noted, data presented in this article are from the Current Population Survey (CPS), a monthly nationwide survey of about 60,000 households conducted by the Bureau of the Census. A description of the survey methodology can be found in the explanatory notes in any issue of *Employment and Earnings* (U.S. Department of Labor, Bureau of Labor Statistics).

³ All data presented in this article which refer to averages for the 14-year period, 1968 to 1981, are weighted averages, calculated by summing the numerators for the 14 years and dividing the result by the sum of the denominators. In the unemployment rate calculation, this tends to assign a greater weight to years with high unemployment levels and to more recent years, as labor force levels (the denominator) continue to rise.

⁴ Philip L. Rones, "Older men—the choice between work and retirement," *Monthly Labor Review*, November 1978, pp. 3–10.

⁵ Stephen W. Salant, "Search Theory and Duration Data: A Theory of Sorts," *Quarterly Journal of Economics*, February 1977, pp. 39–57.

⁶ Norman Bowers, "Probing the issues of unemployment duration," *Monthly Labor Review*, July 1980, pp. 23–32.

There are generally acknowledged to be three types of errors in the gross change data: sampling variability, misclassification of labor force status, and rotation group bias. These are discussed extensively in: Ralph E. Smith and Jean E. Vanski, "Gross change data, the neglected data base," *Counting the Labor Force*, Appendix II (Washington, National Commission on Employment and Unemployment Statistics, 1979) pp. 132–50. These biases are summarized in Bowers, "Probing the issues."

⁷ While the gross change tabulations provide the numbers of people moving from U to E and U to N by duration, they do not provide either the U to U flows or a total distribution of persons by duration. However, the basic monthly CPS does have a distribution of unemployed persons, by age and sex and duration. The distributions were calculated as follows (using 1981 annual averages for men age 25 to 44):

	Weeks of unemployment						
	Total	5	5–6	7–10	11–14	15–26	27+
STEP 1 Unemployed (Basic CPS tabulations)	1,765	601	140	237	159	274	355
STEP 2 Percent distribution (From Step 1)	100.0	34.1	7.9	13.5	9.0	15.5	20.1
STEP 3 Unemployed . . . (Gross change tabulations) Distributions applied to 1,685 to calculate duration categories	1,685	575	133	227	152	261	339

Note: The total unemployed from the gross change data, 1,685,000, differs from the total unemployed from the basic CPS. This is the result of the biases discussed in footnote 6, primarily rotation group bias (which, interestingly, is almost nonexistent in the older age group). In order that all data will be comparable to the UE and UN data available from the gross flows tabulations, the distribution in step 3 is necessary. From the results in Step 3, UU can be calculated by subtracting UE+UN from the total U (gross change) shown in step 3.

⁸ Bowers, "Probing the issues."

⁹ The assumption of a constant probability of leaving unemployment as duration increases has its basis in job search theory. Table 4 shows the likelihood of jobless persons in different sex/age groups

leaving unemployment, either by finding a job or by leaving the labor force. While these data represent the "average" unemployed person, disaggregation of the data by duration of unemployment shows a different dimension of labor force transitions.

As shown in the table below, the probability of leaving unemployment declines steadily as duration of unemployment increases, while the probability of finding a job falls. Although this phenomenon is characteristic of all labor force groups, older workers appear to suffer somewhat more from declining probabilities of finding employment. For example, older men who have experienced 6 months or more of unemployment are only 30 percent as likely to find a job between monthly surveys (.091/.295) as are those unemployed less than 5 weeks. For men ages 25 to 44, the same comparison is about 40 percent (.174/.444).

Probability of leaving unemployment,¹ by duration of current spell of unemployment, for selected age groups, by sex, 1968 to 1981.²

Sex and age groups	Weeks of unemployment					
	< 5	5–6	7–10	11–14	15–26	27+
Men						
Age 25 to 44 . . .	.531	.418	.381	.368	.343	.286
Age 60 and over . .	.591	.460	.479	.385	.396	.387
Women						
Age 25 to 44 . . .	.665	.543	.523	.461	.405	.400
Age 60 and over . .	.651	.567	.500	.383	.394	.387

¹ The probability of leaving unemployment is, as defined in the text, pESC (escape) = $UE + UN/U(t-1)$ where E and N represent employment and not in the labor force status in month t and U represent unemployment status in month t-1.

² See footnote 3.

These data do not necessarily imply, however, that increasing duration itself results in a decreasing probability of finding employment. Most theories of job search assume that a person looking for work will maintain (or, perhaps, lower) his acceptance wage as his period of job search lengthens. His individual probability of finding a job, thus, is assumed to be constant (or to increase) with increased duration. This theory appears to conflict with the declining probabilities of employment shown in table 6. But, as explained below, they can be consistent.

Another assumption of job search theory generally is that the unemployed are a heterogeneous group, each person possessing a different set of skills, education, reservation wage, alternative income sources, and so forth. This heterogeneity means that an individual may have a constant escape rate over time but that different individuals will have different escape rates. As a group continues in unemployment, those with high escape rates will tend to leave more quickly, eventually leaving a group comprised primarily of persons with low escape rates. Thus, the aggregate escape rates decline as the persons with high escape rates "sort" themselves out. There may also be some causal relationship between increased duration and declining escape rates, although the evidence is limited at this time. See, for example, A. McGregor, "Unemployment Duration and Re-employment Probability," *The Economic Journal*, December 1978, pp. 693–705; and John M. Barrow and Wesley Mellow, "Changes in the Labor Force Status Among the Unemployed," *Journal of Human Resources*, Summer 1981, pp. 427–41.

¹⁰ A strong argument linking labor force withdrawal to job market factors can be found in Kim B. Clark and Lawrence H. Summers, "Labor Market Dynamics and Unemployment: A Reconstruction," *Brookings Papers on Economic Activity* (Washington, The Brookings Institution, no. 1:1979), p. 25.

¹¹ This technique was used in Bowers, "Probing the issues," p. 26.

¹² The use of a median in this analysis avoids the problem of a mean, or average, duration in that no decision needs to be made in selecting midpoints for broad aggregations of weeks (such as 15 to 26 or 27 weeks and over). The median generally falls within a narrow aggregation such as 11 to 14 weeks; an even distribution throughout that duration category is assumed in order to identify the exact median point.

¹³ The work experience data, in the aggregate, tend to underreport

unemployment as compared to the monthly survey. Since the monthly CPS refers to a reference week, the total number of weeks of unemployment from the work experience data (number of persons × average duration) divided by 52 (weeks) should equal the average monthly estimate (or come close, after allowing for certain technical adjustments). In fact, the work experience estimates tend to fall in the range of 75 to 85 percent of the regular CPS estimates. This underreporting is particularly severe among teenagers (in the neighborhood of 50 percent). The differences between the surveys fall within +/− 12 percent for all age groups of men over age 20 and, thus, would have little impact on the analysis of the male work experience data presented in this article. For women, however, those in the 25 to 54 year age group show about a 20-percent undercount as compared to the monthly data, while those over age 55 have a slight overcount. Thus, the work experience results shown in this article may tend to overestimate the actual duration of unemployment differences between younger and older women.

For an indepth discussion of the nature and causes of the monthly CPS/work experience supplement reporting differences, see Wayne Vroman, "Measuring Annual Unemployment," (Washington, The Urban Institute, February 1979), Working Paper 1280-01.

¹⁴ See Marc Rosenblum, "Recessions Continuing Victim: The Older Worker" (U.S. Senate, Special Committee on Aging, 1976).

¹⁵ A total of 4,668 persons in the May 1976 CPS sample were unemployed. If the unemployed individual was at home during the interview, the job search supplemental questions were asked on the spot. If the person was not at home or if the interview was conducted by telephone, the request was made that the questionnaire be completed by the unemployed person and sent to the Census Bureau. Due to the voluntary nature of the survey, 31 percent of the unemployed did not respond. Thus, the data used in the analysis in this article are based on 3,238 responses (potentially somewhat less, because respondents may not have provided answers to every question). The data presented for the percent of persons seeking permanent jobs and for the number of hours of job search were based on unweighted responses. The data for the percent of unemployed seeking full-time work come from the full, weighted CPS sample for May 1976. Similar responses from the 3,238 job search respondents are also available. A comparison of the results shows the following:

Percent of unemployed persons seeking full-time jobs, May 1976

	Age 25 to 54	Age 55 to 64	Age 65 and over
Unweighted job search sample			
Male	98	91	58
Female	83	82	45
Weighted entire CPS sample			
Male	98	92	60
Female	82	76	57

While the high nonresponse rates suggest that the data should be used with caution, age-specific differences in the variables are probably sufficiently large to reflect actual differences between age groups in those variables in the entire sample. See Carl Rosenfeld, "Job search of the unemployed, May 1976," *Monthly Labor Review*, November 1977, pp. 39-42.

¹⁶ These results may be somewhat biased against those groups with a higher proportion of persons who had been unemployed less than 4 weeks. According to the May 1976 special CPS supplement, persons in the 25 to 54 and 65 and over groups were more likely to report less than five weeks of unemployment (the lowest disaggregation available) than were those age 55 to 64.

¹⁷ The monthly BLS press release, entitled *The Employment Situation*, provides an unemployment rate calculation based on seven dif-

ferent definitions of unemployment and the labor force. These data are available from the Bureau of Labor Statistics, Division of Employment and Unemployment Analysis, Washington 20212.

¹⁸ See Paul O. Flaim, "Discouraged workers and changes in unemployment," *Monthly Labor Review*, March 1973, pp. 8-16, and Barbara Cottman Job, "How likely are individuals to enter the labor force?," *Monthly Labor Review*, September 1979, pp. 28-34.

¹⁹ The most thorough assessment of the use of the discouraged worker concept can be found in T. Aldrich Finegan, "The Measurement, Behavior, and Classification of Discouraged Workers," *Counting the Labor Force*, Appendix, Vol. 1 (Washington, The National Commission on Employment and Unemployment Statistics), pp. 194-234.

²⁰ Those who follow the alternative measures of unemployment published by the BLS will note that the measure which includes discouraged workers (U-7) also includes those who are working part time but who want full-time jobs (part time for economic reasons). The calculation actually includes only half their numbers among the unemployed, the explanation being that these people tend to work about half of a full-time workweek, on average. Among men, adding one-half of this group affects the oldest age group's unemployment rate more than the other two groups, adding 1.8 points to the rate for those 65 and older and 1.0 and 1.2 points to the 25 to 54 and 55 to 64 age groups, respectively. Among women, the effect across age groups is virtually identical, adding almost 2 points to each rate.

²¹ There is a procedure in the coding of CPS responses that could underestimate the number of discouraged workers. All reasons for not looking for work are recorded by the CPS enumerator. If a "discouraged response" is accompanied by some other response, such as ill health, on vacation, or home responsibilities, then the person is not classified as discouraged because he or she is not considered to be available for work during the survey week.

²² Herbert S. Parnes, Mary G. Gagen, and Randall H. King, "Job Loss Among Long Service Workers," in Herbert S. Parnes, ed., *Work and Retirement: A Longitudinal Survey of Men* (Cambridge, Mass., MIT Press, 1981), pp. 65-92.

²³ Dean W. Morse, Anna B. Dutka, Susan H. Gray, "Retirement Experience of Non-Supervisory Personnel: A Study of Three Large Corporations," draft final report (New York, Columbia University, Conservation of Human Resources, 1981).

²⁴ The reservation wage data suffer not only from the nonresponse problem associated with the entire survey, reported in footnote 15, but also from some nonreporting even among survey respondents. The small number of older unemployed women reporting their reservation wages make conclusions for that group difficult.

²⁵ Samuel E. Doctors, Yitzchak M. Shkop, Karen C. Denning and Veta T. Doctors, "Older Worker Employment Services," *Aging and Work*, Fall 1980, pp. 229-37. This study is limited by a small survey, which is not necessarily representative of older jobseekers as a whole. However, the researchers did find a very high retention rate among older jobtakers, which they feel supports the theory of a strong commitment to work, an issue raised extensively in this article.

²⁶ Philip L. Rones, "The retirement decision: a question of opportunity?," *Monthly Labor Review*, November 1980, pp. 14-17.

²⁷ See Louis Harris and Associates, *The Myth and Reality of Aging in America* (Washington, The National Council on the Aging, Inc., 1976), p. 89; Stephen R. McConnell, Dorothy Fleisher, Carolyn E. Usher, and Barbara Hade Kaplan, *Alternative Work Options for Older Workers: A Feasibility Study* (Los Angeles, University of Southern California, Ethel Percy Andrus Gerontology Center, 1980), and Louis Harris and Associates, *Aging in the Eighties: America in Transition* (Washington, The National Council on the Aging, Inc., 1981), pp. 51-52.

²⁸ Harold L. Sheppard and Sarah E. Rix, *The Graying of Working America* (New York, The Free Press, 1977), p. 6.

²⁹ See McConnell and others, "Alternative Work Options"; and "Work After 65: Options for the 1980's" (U.S. Senate, Hearings before the Special Committee on Aging, May 13, 1980), Pt. 2.

The aging of the U.S. population: human resource implications

In the upcoming decades, 'older workers' will be competing against the largest cohort of middle-aged workers in our country's history; in the absence of other options, the elderly may feel increased pressure to retire or work part time

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If present demographic trends persist, the proportion of older persons in the United States is expected to increase significantly, particularly after the turn of the century. At present, there is lively debate concerning the labor force implications of such an "older" population. Some analysts have suggested that the projected decline in persons age 16 to 24 in the population will lead to increased demand for, and retention of, older workers. Others have cautioned that, despite demographic changes, factors such as persistent high unemployment among "prime age" workers, increased legal and illegal immigration, sustained growth in women's labor force participation, changing technology, and continuation of recent trends toward early retirement will mitigate against a major shift in the age structure of the work force until well into the next century.

Because so many considerations influence the choice which older persons make between work and retirement—such as availability of retirement benefits, health status, job opportunities, training, and education, and personal preferences—it is difficult to draw reasonable

conclusions about the future age composition of the labor force. This problem becomes more complicated because economic conditions, which directly affect aggregate demand for labor, cannot be predicted with certainty.

Nevertheless, it is essential to consider available demographic and labor force data and projections in the development of human resource policies for the future, because the "aging" of the pool of workers could have profound societal and economic implications. For example, an older labor force will pose a series of challenges to human resource managers, who may be required to tailor new and more flexible personnel policies and employee benefit plans to the needs of older workers. And, the probable effects of demographic changes have added significance for future retirement policies, for the overall costs of social security and private pensions depend critically upon the length of the retirement period or, conversely, on the mean duration of employment.

This article focuses on demographic and labor force trends and their implications for the future employment of older workers. It includes a review of data and projections for the population and labor force; a discussion of likely industrial and occupational shifts; and an inventory of the characteristics of older workers. It seems proper at this point to caution the reader again that the

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accuracy of any forecast is questionable, and that long-term projections, such as those presented below, are more unreliable than those made for the short term. Thus, while the following discussion deals with a number of likely future scenarios, it by no means exhausts the list of possible outcomes.

Population changes

The Bureau of the Census has estimated the 1982 U.S. population at 232 million, with a median age of nearly 31 years (compared with 29 in 1976). More than 1 of 5 persons (48 million) were age 55 or over, and of these individuals, 26 million were age 65 or older. (See tables 1 and 2.) Women accounted for 60 percent of the age 65-or-older population.

Over the next 30 years, the population age 55 and over is expected to increase to nearly 70 million, representing about 1 in 4 persons; 35 million people—60 percent of them women—will be at least 65 years old. The median population age will have increased to almost 37 from the present age 31. Finally, life expectancy at birth and at age 65 will continue to increase significantly over the next three decades. Whereas today, male life expectancy at birth is about 70 years and at age 65, 14 years, men born in the year 2010 can expect to live 73 years and 16 years more if they reach age 65. Similar increases will occur for women, and in 2010 their life expectancy at birth will be nearly 82 years and they can expect to live almost 22 additional years beyond age 65.

However, this "gradual" aging of the population will be completely overshadowed by the year 2030 when nearly 30 percent of the population will be age 55 and over and 55 million people will be age 65 or over (18 percent of the total population), with 40 percent of these persons being age 75 or over. By this time, the median age will be 38 and people will have an even longer life expectancy at birth and at age 65.

Due to the decrease in the ratio of the working to the nonworking population (from 5.1 in 1980 to 3.0 in 2030) and the decline in the number of workers per Social Security beneficiary (from 3.7 in 1981 to 2.2 in 2030), major adjustments in retirement income support programs will be necessary. Because of current fiscal problems of Social Security, possible alternative approaches to this long-term problem are already being discussed. The large increase of older persons in the population after the turn of the century will clearly require longer labor force participation at older ages if retirement benefits similar to those of today are to be maintained.

Clearly, between now and the year 2000, the most striking trend is the decline in the number and proportion of the population age 18 to 34 who represent a substantial portion of the current labor force. The gen-

Table 1. Projected demographic trends for 1982, 2000, 2010, and 2030, by age

Demographic trends	1982	2000	2010	2030
Number of persons (in thousands and as percent of total)	231,964 (100.0)	266,496 (100.0)	281,732 (100.0)	307,340 (100.0)
Age:				
18 to 24 years	29,804 (12.8)	24,882 (9.3)	28,629 (10.1)	28,771 (9.3)
25 to 34 years	39,416 (16.9)	35,783 (13.4)	37,605 (13.3)	38,715 (12.5)
35 to 54 years	51,570 (22.2)	79,177 (29.7)	77,160 (27.3)	77,651 (25.2)
55 years and over	48,334 (20.8)	56,270 (21.1)	69,184 (24.5)	88,100 (28.6)
55 to 64 years	22,141 (9.5)	23,824 (8.9)	33,760 (11.9)	32,236 (10.4)
65 to 74 years	15,756 (6.7)	17,283 (6.4)	19,586 (6.9)	31,561 (10.2)
75 years and over	10,435 (4.4)	15,162 (5.6)	15,837 (5.6)	24,302 (7.9)
Median age (in years)	30.7	35.5	36.6	38.0
Life expectancy (in years)				
At birth:				
Men	69.8	72.9	73.4	74.2
Women	77.7	81.1	81.6	82.6
At age 65:				
Men	14.3	15.8	16.1	16.7
Women	18.7	21.1	21.6	22.4

¹Data are for 1980.

SOURCES: Bureau of the Census, "True Level Population Projections" (1977) and Social Security Administration, *Social Security Area Population Projections, 1981*.

eral magnitude of this change is indicated in table 1 where it can be seen that between 1982 and 2000 there will be a decline of approximately 6 percent of persons age 18 to 34 resulting in approximately 8.4 million fewer persons in this age range in 2000. However, while this is occurring, prime-aged persons (35 to 54 years) will increase their share of the population by 7 percent, and other group's proportions in the population will remain fairly stable. The major decrease in the younger population age groups has resulted in speculation that there will be shortages of entry-level and other types of skilled workers in the next 20 years. A closer examination of the data demonstrates the age groups where these "shortages" will arise. Table 2 indicates that about three-fifths of the decline will occur because of reduced numbers of 18- to 25-year-olds in the population and that most of the remaining decline will be in the 26 to 29 year age group.

(Persons age 30 to 39 will actually increase in the population by 2000.) The bulk of the population decline is therefore concentrated in the 18 to 29 age range between now and the year 2000. (There will also be a significant decline in 16- and 17-year-olds and most younger age groups through 2000 due to a continuation of below replacement level fertility rates, which are assumed to approximate replacement fertility prior to 2000.) Thus, it can be assumed that the shortage of younger persons will be of somewhat more significance in terms of entry-level employment (persons 18 to 25

years old) than for journeyman type skilled jobs more often occupied by persons age 26 to 35. Of course, the magnitude of such "shortages" depends upon the overall demand for labor, and more specifically, on labor force participation by various age groups.

It should be noted that there will be fewer persons age 18 to 34 in the population in the year 2000 than at present *but* that this pattern is reversed for persons age 35 to 54, who will experience a 7-percent increase in the population by that time. In addition, beyond the turn of the century, there will be fewer persons age 18 to 39 and substantially more age 55 and over. This indicates that in the short run, the decline in the portion of younger persons may be partially offset by the growth of the "middle-aged" but that continuous population aging will result in a major reduction in the proportion of younger persons, a commensurate increase of older persons, and a stabilization of middle-aged individuals after the turn of the century. Therefore, from a demographic perspective, over the next 18 years there will be a definite decline of younger persons age 18 to 29 of about 8 million and a major increase in the population age 35 to 54 of about 28 million. After the turn of the century, the important change will be the large increase in the number and proportion of older persons with a *relative* stabilization of younger and middle-aged groups.

Labor force changes

In 1982, the total U.S. labor force is estimated at 110 million—62 million men (56 percent) and 44 million women (44 percent). At present, persons age 18 to 24 represent 20 percent of the total labor force, those age 25 to 34 are 28 percent and individuals age 55 and over

—14 percent. Only 2.7 percent of the labor force or about 3 million persons are age 65 and over; three-quarters of these workers are between the age of 65 and 74 and nearly 60 percent are aged 65 to 69.

Between now and the year 2000, the composition of the labor force will be changing significantly. At that time, the labor force will be composed of about 134 million people (a 22-percent increase over 1982). Men will represent 52 percent (versus 56 percent in 1982) and women 48 percent (versus 44 percent in 1982). There will be a significant decrease in the proportion of the labor force composed of younger persons. Those age 18 to 24 will represent only 15 percent of the labor force, (a 5-percent decrease), persons age 25 to 34 will account for 22 percent (a 6-percent decrease).

However, while the proportion of younger persons in the labor force is declining, middle-aged workers between 35 and 54 years will increase significantly, both in number and proportion.¹ Specifically, persons in this age group, who now represent 35 percent of the work force (39 million persons), will be 49 percent of the labor force by the year 2000 (64 million persons). This 14-percent increase in potential middle-aged workers can be contrasted with the 11-percent decline in workers age 18 to 34.

While these changes are occurring for the young and the middle-aged, there will be a 2-percent decline in labor force participation for persons age 55 and over including reductions in persons age 55 to 65, 65 to 74, and 75 and over. Projections indicate that only 11 percent of the labor force will be age 55 and over and only 2 percent will be age 65 and over in 2000.

Although the proportional *population decrease* for younger men and women age 18 to 34 between 1982 and 2000 will be similar (about 12.5 percent), this will not hold for *labor force composition* where women will gain 7 percent, while men will decline 13 percent.² To some extent, this change reflects a continuing growth in women's entry into the labor force and, interestingly, significant proportional increases of black women in the labor force. It is especially important to note that in terms of both the population and labor force, blacks will experience proportional increases over the next 20 years while whites will generally decline.

Thus, while the decrease of younger persons in the labor force will parallel population changes, the same principle will hold for the middle-aged population and labor force which will increase. The statistics also demonstrate that while there will be a modest proportional increase in the number of older persons by the year 2000, there will be a simultaneous decline in their labor force attachment. (These projections are based on an assumption of a continuation of the early retirement trend through 2000 with little or no change in national retirement policies.)

Table 2. Projected demographic trends for 1982, 2000, 2010, and 2030, selected age groups

Demographic trends	1982	2000	2010	2030
Number of persons (in thousands and as percent of total)	231,964 (100.0)	266,496 (100.0)	281,732 (100.0)	307,340 (100.0)
Age:				
18 to 21	16,895 (7.2)	14,943 (5.6)	16,255 (5.7)	16,670 (5.4)
22 to 25	17,228 (7.4)	13,242 (4.9)	16,482 (5.8)	16,044 (5.2)
26 to 29	16,373 (7.0)	13,892 (5.2)	16,014 (5.6)	15,460 (5.0)
30 to 34	18,723 (8.0)	18,586 (6.9)	17,482 (6.2)	19,311 (6.2)
35 to 39	15,957 (6.8)	21,174 (7.9)	17,351 (6.1)	20,222 (6.2)
0 to 19	71,139 (30.0)	78,133 (29.3)	77,213 (27.4)	82,492 (26.8)
20 to 64	134,632 (58.0)	156,015 (58.5)	169,205 (60.0)	169,321 (55.0)
65 and over	26,192 (11.2)	32,445 (12.1)	35,424 (12.5)	55,863 (18.1)
Ratio of population aged 20 to 64 to:				
Population 65 and over	5.1	4.8	4.7	3.0
Population 0 to 19 and 65 and over	1.3	1.4	1.5	1.2

SOURCE: Bureau of the Census, "True Level Population Projections" (1977).

However, it is important to recognize that these demographic projections alone do not necessarily demonstrate either that there will be a direct substitution between middle-aged and younger workers or that there will be little or no demand for older workers to meet future labor requirements. Typically, middle-aged workers have not been recruited for entry-level jobs nor have they tended to work on a part-time basis. Therefore, the decline in the younger labor force may produce demand for entry-level workers which might be met by older persons. In addition, skill shortages might result in the development of retraining programs for both middle-aged and older workers in order to meet employment demand. Finally, an increase in flexible work schedules may lead to a greater demand for older workers.

Future labor force participation

There are two basic ways in which the age composition of the labor force can change significantly—through demographic shifts such as changes in birth or mortality rates, or through changes in labor force participation rates of different age groups. The first has been described and the results indicate that the overall population and labor force will decrease for persons age 18 to 34 but increase for the middle-aged group between the ages of 35 and 54. However, unless the present labor force participation of various age groups is examined, it is difficult to be more precise about such future changes.

A review of current and projected labor force participation rates indicates the following:³ (a) overall participation in the labor force will increase by about 5 percent by the year 2000; (b) there will be significant increases in participation for all groups between age 18 and 44; and (c) participation rates for "older workers" (65 and over) will drop significantly while those for middle-aged workers age 45 to 64 will remain relatively stable. An examination of sex specific participation rates indicates that almost the entire gain in labor force participation rate is attributable to greater participation by women, more than three-fifths of whom will be in the work force by 2000. The increasing rate of female participation is the major factor influencing increased participation rates for persons age 18 to 44 and this pattern will also persist for women age 45 to 64. However, older women's labor force participation rates will decline only slightly, which means that lessened participation by older men will be the major reason for the continuing significant decrease of older workers in the labor force through the year 2000.

These findings indicate that caution should be exercised in evaluating the significance of population and labor force declines for younger persons in terms of the development of "labor shortages" over the next 20 years. For the significant projected increases in labor

force participation rates imply that a greater proportion of a reduced younger work force will participate in the future labor force. It is not possible presently to evaluate whether such increased participation will significantly reduce potential shortages of entry-level and skilled workers and lead to reduced demand for middle-aged and particularly older workers. At the same time, these projections strongly suggest that the proportional decline of older persons in the labor force will be accentuated by reduced rates of participation particularly by older men who will make up nearly 60 percent of older workers in the year 2000. Reduced labor force participation may well characterize the older population seemingly irrespective of various labor shortages and increases in demand for workers that might develop over the next two decades. Growth of the middle-aged labor force and particularly the increased participation by middle-aged women appears to be the most important factor which will mitigate the consequences of the decrease in younger workers. While higher younger worker participation in the labor force (especially younger women) might ease the shortage of entry-level workers, it may be necessary for more of the middle-aged to accept such positions in the future. Of course, older workers can qualify for both entry-level and (with training) skilled jobs in the work force. But, under present and projected future circumstances, it is unlikely that *major increases* in older worker employment will occur unless national employment and retirement policies change significantly.

Policies to encourage longer employment for older persons are under discussion and thus the projections considered here should be viewed as "steady-state" assumptions which might have to be changed under different retirement policies. An understanding of the labor force characteristics of older workers is essential for developing effective policies designed to encourage older worker labor force participation.

Characteristics of older workers

As the statistics demonstrate, most older workers⁴ expect and desire to retire and actually do so. Because of the limited number of older persons who have continued to work, much more research and policy attention has been focused on the antecedents of the retirement decision and life circumstances after retirement. The *number* of older participants in the labor force has remained quite stable since 1950 when they accounted for nearly 5 percent of the work force and nearly 27 percent were labor force participants. However, in 1982, such workers made up slightly less than 3 percent of the labor force and only about 12 percent participated. If the 1950 participation rate still existed, there would be more than 6 million older workers today (about 5 percent of the labor force) instead of the actual 3 million.

There are a number of important characteristics of these older labor force participants which provide some guidance as to what might be expected if more older persons were encouraged to remain in the labor force:

- Of today's older workers, about 62 percent are men, half of whom work at full-time jobs. Among older women (38 percent of older workers), most work part time. For both men and women, the percentage with any work experience during the year has been declining steadily since 1950 as indicated by both work experience and labor force participation data. Older blacks are slightly more likely than whites to report work experience but tend to work more often on a part-time basis.
- Unemployment rates for older workers continue to be quite low, but for older persons who have been working and become unemployed, work experience data indicate that they face the longest median duration of unemployment of any age group—18 weeks. The extent to which unemployment among older workers is obscured by early retirement as a result of either prior unemployment or an erratic employment history, has proven difficult to measure. However, it is assumed that most persons who are very early retirees leave the labor force because of failing health. While older white men had an unemployment rate of 2.4 percent in 1981, the rate for comparable black men was nearly four times as great—8 percent—and a similar though less pronounced pattern existed for nonwhite women. The major reason for low unemployment among older workers remains that only 16 percent of all older persons had any work experience in 1981 and that this limited labor force attachment is likely to persist in the near-term future.
- The very rapid growth of the labor force over the past 10 years (2.45 percent a year) will slow to about 1.4 percent a year for the 1980 decade and less than 1 percent a year from 1990 to 2000. It is therefore likely that the 1980 labor force of 106 million will grow to somewhat over 130 million by the year 2000. Although lower birth rates will result in a smaller pool of younger workers, expansion of the labor force is likely because of multiple family earners, growth in single-person households headed by divorced, widowed, or never-married persons, and women's increasing role in the work force. Recently, several commentators have suggested that the reduction of the youth labor force will lead to labor shortages and demand for older workers.⁵ However, as we have pointed out, the expansion of the prime-age work force and greater labor force participation by this group (as well as younger persons) could easily overwhelm the youth labor force decline, leaving relatively little opportunity for older workers whose share of

the labor force has been declining consistently for more than 25 years. Thus, reduced labor force growth in the future does not necessarily mean that an increased demand for older workers will develop. Such a consequence could be influenced by an improved economy which requires significantly more labor despite improvements in technology.

- While it is clear that there are significant economic advantages of employment to older workers (full-time workers age 65 to 69 had a median income 43 percent higher than nonworkers in 1978), persons age 65 and over are concentrated in a small number of industries and occupations.⁶ Almost two-thirds of the older men are employed in two industries—trade (primarily retail) and miscellaneous services (primarily business and repair, personal, and other professional)—while slightly less than 40 percent of all other age group employees are found in these industries. In terms of occupations, older workers are heavily employed as managers and administrators, professional and technical workers, service workers, and farmers, and have low representation as craft and kindred workers, sales, clerical, and operatives (including transport). Older workers tend to occupy jobs such as small farmers, private household workers, service workers, and so forth, which are often not full-time, full-year occupations.⁷ Also, older workers are more highly represented among the self-employed which permits part-time work and considerable flexibility in scheduling.
- The older work force consisted of 1.9 million men and 1.1 million women with an additional 1 million persons reporting work experience in 1981. This figure—4 million older workers—represents about 16 percent of the total population age 65 and over. Older persons who work, typically do so on a part-time basis; in 1981, there were about 2.2 million such workers, of which 57 percent were men and 43 percent, women. About 1.9 million older persons worked full-time with nearly two-thirds working 50 to 52 weeks; most frequently, these were men.

Despite the limited labor force attachment of older workers, and the seeming reluctance of most older persons to secure employment, national surveys continue to indicate strong preferences for some type of continued employment (usually part-time) after retirement from the longest-held job. Older persons say they are primarily interested in part-time work, usually the same as or similar to their preretirement jobs. The survey findings strongly suggest that if more flexible work policies were adopted, many older persons would take advantage of them. From a practical standpoint, when business firms have offered part-time schedules to older workers, there has usually been considerable response

which exceeded the company's needs. However, in the great majority of firms, flexible employment policies of this type do not exist; therefore, older workers have no choice but to permanently retire from the firm. Once this occurs, the evidence indicates that few older persons secure other employment.

It appears that for older retirees, actualization of a preference for part-time work is a difficult process which occurs infrequently. Lack of suitable work opportunities, age discrimination, discouragement in job seeking, and perceived health limitations all contribute to this circumstance. Simultaneously, national retirement policies (public and private pensions) clearly provide significant incentives to leave the labor force but virtually no corresponding inducements to re-enter employment. And, it is clear that the growth in preference for part-time employment at older ages will not alone produce the kinds of work opportunities most suitable for older workers.

Industrial and occupational changes

To some extent, changes in the Nation's industrial and occupational profile will influence the degree to which employment opportunities will be available to older workers in the years ahead. The Bureau of Labor Statistics, using a model of the U.S. economy, has developed projections of industrial and occupational changes through the year 1990.⁸

Over the next decade, the continued growth of service industries will be a major characteristic of the economy. Overall, these industries are expected to experience employment growth of 30 percent by 1990, led by growth in direct service industries (53 percent employment growth), retail and wholesale trade (28 percent growth), and finance, insurance, and real estate (34 percent).

Table 3. Employment by industry, 1981 and projected 1990

Industry	1981		1990 ¹	Projected change in employment 1981-90	Average annual percent change in employment
	65 and over	All ages	All ages		
Total employment (in thousands) . . .	3,119	107,347	124,184	16,837	1.6
Distribution (in percent)	100.0	100.0	100.0		
Agriculture	9.2	3.0	2.0	-737	-2.9
Mining	0.4	1.0	0.8	-80	-0.9
Construction	3.7	6.3	6.3	1,061	1.6
Manufacturing:					
Durables	6.1	13.4	12.4	1,014	0.8
Nondurables	5.6	8.8	7.4	-257	-0.3
Transportation	3.2	6.3	6.0	688	1.1
Wholesale and retail trade . . .	23.6	20.5	22.7	6,184	2.8
Finance, insurance, and real estate	6.1	5.9	5.9	993	1.6
Services	37.8	29.5	31.3	7,202	2.3
Public administration	4.2	5.2	5.2	876	1.6

¹Valerie A. Personick, "The outlook for industry output and employment through 1990," *Monthly Labor Review*, August 1981, pp. 28-41.

Table 4. Employment by occupation, 1981 and projected 1990

Industry	1981		1990 ¹	Projected change in employment 1981-90	Average annual percent change
	65	All ages	All ages		
All occupations (in thousands) . . .	3,119	107,347	123,749	16,402	1.6
Distribution (in percent)	100.0	100.0	100.0		
Professional-technical	13.3	15.7	16.6	3,689	2.3
Managers-administrators	13.2	11.2	8.8	-1,133	-1.1
Sales	10.3	6.2	6.7	1,636	2.5
Clerical	14.1	18.3	18.6	3,373	1.8
Craftworkers	7.3	12.8	12.1	1,233	1.0
Operatives	8.9	14.4	13.8	1,619	1.1
Nonfarm laborers	3.9	4.7	5.8	2,132	4.0
Private household	4.1	1.2	0.8	-298	-2.9
Service	16.3	13.0	15.0	4,607	3.2
Farmworkers	8.6	2.4	1.9	-225	-1.0

¹Max L. Carey, "Occupational employment growth through 1990," *Monthly Labor Review*, August 1981, pp. 42-55.

Goods-producing industries will grow far more slowly through 1990 (13 percent) with some major growth in manufacturing and declining employment in agriculture. Basically, over the next two decades, employment in service-producing industries will grow significantly while growth in goods-producing industries will be modest.

For purposes of analysis, occupations are usually categorized as white collar (professional and technical, clerical, sales, and managerial); blue collar (craft, operative, and laborer); service; and farm. Over the next 10 to 20 years, there will be a continuing growth of professional and technical occupations, particularly for scientists, engineers, and technicians, as well as medical and health services occupations. The demand for salaried managers will also continue to grow significantly as will that for technologically trained clerical workers. The expansion of the retail trade industry will increase the growth of salesworkers and, similarly, the increases in services and contract construction will result in growth of craftworkers and operative employees. The greatest employment growth will occur for service workers with professional and technical service employment.

There are certain difficulties in estimating expected job openings based on industrial and occupational changes in the economy. Replacement needs caused by deaths and retirements will greatly exceed openings arising from employment growth in the years immediately ahead; however, occupational transfers and temporary labor force separations will be the largest source of job openings. Of course, employees in clerical, service, sales, and operative occupations have a higher replacement rate (primarily because of less need for training) than professional and technical occupations in which job transfers are more difficult. Data on total replacement needs by occupation are not presently available. Howev-

er, because of job transfers, deaths, retirements, and other labor force separations, job opportunities may exist even in occupations where employment is expected to increase slowly or decline.

Tables 3 and 4 indicate that industries (wholesale and retail trade and services) and occupations (professional, technical, sales, clerical, and service) in which older persons are disproportionately employed today are expected to grow considerably in the years ahead. Today the wholesale and retail trade and service industries employ 60 percent of all older workers, and 70 percent of the overall projected increase in employment through 1990 is expected to occur in professional and technical, clerical, and service occupations. These industries and occupations frequently hire part-time employees—in 1980, about one-fifth of all employees in professional, technical, and clerical occupations worked part time.

While selected areas of industry and occupational growth may well result in more part-time job opportunities suitable for older workers, there is considerable uncertainty regarding whether older persons will fill these types of jobs in the future. There will be a substantial number of middle-aged workers, particularly women, who might also compete for this employment

and a remaining group of younger persons interested in part-time work. With present retirement policies, it is very likely that, despite the potential for a modest increase in elderly employment over the next 20 years, the number of nonworking elderly will increase from about 23 million in 1982 to approximately 30 million in 2000 and could reach 49 million by 2030 if present declining labor force participation trends continue.

IN CONCLUSION, the findings suggest that predictions of *major* labor shortages in the next two decades, leading to demand for more older workers, may be exaggerated and that the growth of the middle-aged to older work force will be the most important characteristic of the future labor market. While there will be a decline in numbers of younger labor force entrants, this may not be significant enough to increase the demand for workers over age 65, whose labor force participation is already substantially diminished by the availability of public and private pensions, desire for leisure, and limited part-time employment opportunities. Therefore, it is unlikely that older workers will be able to compete successfully against the largest cohort of middle-aged workers in U.S. history. □

— FOOTNOTES —

¹ Howard N Fullerton, Jr., "The 1995 labor force: a first look," *Monthly Labor Review*, December 1980, pp. 11–21; and unpublished statistics.

² Howard N Fullerton, Jr., "The 1995 labor force."

³ Howard N Fullerton, Jr., "The 1995 labor force."

⁴ This section refers to workers over age 65 unless otherwise noted.

⁵ See Lawrence Olson and others, *The Elderly and the Future Econ-*

omy (Lexington, Mass., Lexington Books, 1981.)

⁶ Phillip L. Rones, "Older men—the choice between work and retirement," *Monthly Labor Review*, November 1978, p. 7.

⁷ See Thomas C. Nelson, "The Age Structure of Occupations," in Pauline K. Ragan, ed., *Work and Retirement: Policy Issues* (Los Angeles, Calif., The University of Southern California Press, 1980).

⁸ *Occupational Outlook Handbook, 1980–81 Edition* (Washington, Bureau of Labor Statistics, March 1980).

U.S. foreign trade prices in 1982: import index falls, export indexes mixed

Import-export prices were affected by the appreciation of the dollar and the worldwide recession; crude oil led the import price decrease, export prices of nonferrous metals, grain, and intermediate manufactured goods recorded decreases

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U.S. import prices¹ fell 2.8 percent in 1982, as the worldwide economic slowdown and the strong U.S. dollar placed downward pressure on U.S. import prices. (See table 1.) The import price drop contributed to the sharply reduced rate of increase in U.S. domestic prices, as measured by the Consumer Price Index and the Producer Price Index.

Crude petroleum import prices, which account for 25.8 percent of the weight of the all-import price index, fell 3.7 percent during the year, and were a major factor in the overall drop in import prices. Some other categories which contributed to this decline were intermediate manufactured products and telecommunications equipment.

The price indexes for exports cover 71 percent of the value of all exported products. For those exports measured, price increases were concentrated mainly in categories of finished manufactured goods. (See table 2.) Most semifinished goods and primary products showed price declines. These results were greatly influenced by the worldwide economic slump, the strong dollar, which tended to raise the prices of U.S. goods in foreign mar-

kets, and the drop in demand for U.S. exports by debt-affected nations. Grain and nonferrous metals were key categories which showed price declines, falling 7.3 and 4.3-percent, respectively. The index for machinery and transport equipment, which accounts for 35.3 percent of all exports, rose 3.9 percent.

The appreciation of the dollar against the currencies of major U.S. trading partners was a key factor in the behavior of import and export prices in 1982. (See table 3.) During 1982, the U.S. dollar appreciated 13.3 percent against all major currencies on a trade weighted basis. It appreciated 10.5 percent against the Japanese yen, 7.1 percent against the West German deutsche-mark, and 465.2 percent against the Mexican peso. The dollar's appreciation was especially pronounced during the first 11 months of 1982, when its weighted average exchange rate rose 18.1 percent. During December, the dollar's weighted average exchange value fell 4.1 percent.²

As U.S. import prices fell in 1982, the nation's merchandise trade set a record deficit. Along with the weakened economy, the drop in import prices contributed to a decrease in the value of imports. However, the value of total exports declined even more. The result was a 1982 U.S. trade deficit of \$36.1 billion, compared with \$27.9 billion in 1981. U.S. merchandise exports of \$211.2 billion in 1982 were off 10.6 percent from their

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level of \$236.3 billion in 1981. This marked the first time in 24 years that the nominal value of U.S. exports fell from 1 year to the next. U.S. merchandise imports of \$247.3 billion were down 6.4 percent from their level of \$264.1 billion in 1981.³ An important factor in the fall in total imports was a substantial drop in the dollar value of crude oil imports, from \$77.6 billion in 1981 to \$61.2 billion in 1982.

In addition, the U.S. current account, which incorporates the balance on merchandise trade and the balance on services (which includes payments on investments abroad) was in deficit by \$8.1 billion in 1982, after recording a surplus of \$4.47 billion in 1981 and \$1.52 billion in 1980.⁴

Table 1. Change in selected import price indexes in 1982 and proportion of trade value

Commodity	Share of total 1980 trade value	Total change	First quarter	Second quarter	Third quarter	Fourth quarter
<i>All commodities, except chemicals</i> ¹	96.524	-2.8	-1.1	-1.1	-0.5	-0.1
<i>Fuels and related products</i> ¹	32.776	(²)	(²)	(²)	-0.5	.0
Crude petroleum	25.799	-3.7	-1.9	-1.3	-0.2	-0.4
<i>Machinery and transport equipment</i> ¹	25.442	-1.3	.0	.2	-1.6	.1
Automobiles	7.201	-1	-3	-2	-1.3	1.7
Metalworking machinery	.755	-5.1	-1.4	3.2	-4.4	-2.5
Electrical machinery and equipment	3.392	-2.9	-1.3	-6	.4	-1.4
Telecommunications equipment	2.789	-6.8	-1.3	-2.0	-2.3	-1.4
<i>Intermediate manufactured products</i> ¹	13.520	-7.5	-8	-3.0	-2.0	-2.0
Iron and steel	3.127	-12.6	-1.3	-3.5	-2.7	-5.6
Nonferrous metals	3.123	-14.0	-3.4	-9.5	-3.5	2.0
Silver and metals of the platinum group	1.037	(²)	(²)	-12.4	7.3	17.9
Textiles	.998	-5.6	-1.1	-2.0	-1.9	-6
Woven cotton fabric	.180	-6.7	-9	-2.4	-2.6	-1.1
Woven man-made fabric	.167	-6.8	-1.7	-4.9	-1.4	.9
<i>Miscellaneous manufactured articles</i> ¹	9.794	.3	-9	.0	1.8	-6
Footwear	1.232	-2.3	-7	.0	-1.1	-8
Watches and clocks	.437	-13.0	-3.9	-3.0	-4.6	-2.2
Miscellaneous manufactured articles, not elsewhere specified, including gold and silver coins	3.286	(²)	(²)	(²)	9.9	.3
<i>Food</i> ¹	6.554	.2	.0	-5.2	2.8	2.8
Meat	.977	-3	-1.9	.2	.4	.9
Fish	1.088	1.7	2.1	-1	-1.7	1.4
Shellfish	.459	14.2	6.1	3.8	.9	2.6
Fish in airtight containers	.126	-13.4	-3.8	-3.2	-4.4	-2.8
Sugar and honey	.925	(²)	(²)	-17.3	36.6	-2
Coffee, tea, and cocoa	2.241	-8	3.9	-5.7	-1.4	2.6
Coffee and coffee substitutes	1.746	6.0	5.9	-2.5	-1.1	3.9
Tea	.054	4.6	1.3	-1.2	6.7	-2.2
<i>Beverages</i> ¹	.880	2.6	.7	1.0	.6	.3
Alcoholic beverages	.867	2.6	.7	1.0	.6	.3
Beer	.152	1.7	-2	.1	-4	2.1
Distilled alcoholic beverages	.425	2.4	1.0	.9	.7	-3

¹ This category includes indexes other than those shown here. For all of the indexes available in each category, see *U.S. Import and Export Price Indexes, USDL-83-77* (Bureau of Labor Statistics, Feb. 16, 1983).

² Not available.

Gross trade as a percentage of U.S. final goods production is a measure of the importance of foreign trade to the goods sector of the U.S. economy. Because of the decline in U.S. export and import merchandise trade dollar values, this measure dropped to 26.0 percent, from 28.6 percent in 1981. In 1960, the figure was 11.9 percent, and in 1970, it had increased to 15.2 percent.⁵

During 1982, U.S. exporters faced reduced demand from developing nations, which account for more than one-third of all U.S. merchandise exports. The United States exported \$82.7 billion of merchandise to developing countries, down 7.1 percent from 1981 shipments of \$89.0 billion. Debt problems were a factor in this drop: Mexico, Brazil, Peru, Indonesia, Zaire, and Argentina were all debt-affected during 1982. The drop in 1982 U.S. exports to Mexico, our third largest trading partner, was dramatic, declining to \$11.8 billion from \$17.8 billion in 1981, a 33.7-percent drop. The drop was especially pronounced in the fourth quarter, when the United States exported merchandise to Mexico at a \$6.9 billion annual rate.⁶

The 1982 price changes were measured by the Bureau of Labor Statistics' International Price Program.⁷ The indexes, which are not seasonally adjusted, represent 100 percent of the value of all imported products, and 71 percent of the value of all exported products. Indexes are published for detailed and aggregate categories of imports and exports, and are based on transaction price information provided by a sample of importers and exporters and their products.⁸

Imports: crude oil price drops; food up slightly

The 3.7-percent drop in crude oil import prices in 1982 was a major factor in the decline in the all-import price index. The crude oil surplus on world oil markets throughout the year, combined with a reduction in demand due to the slump in economic activity in the United States and other major industrialized nations, created downward pressure on prices. (See table 4.) As a result, the Organization of Petroleum Exporting Countries (OPEC) cartel lost market share to non-OPEC producers such as Britain, Norway, and Mexico. At the same time, OPEC posted prices were continually undercut by both member and nonmember nations.

Domestic consumption of petroleum products fell 4.9 percent in volume from the preceding year, with the drop falling primarily on imports.⁹ Deregulation spurred exploration and drilling activities boosted domestic production, and imports of crude oil dropped to 3.5 million barrels per day, off 21.4 percent from 1981.¹⁰ Demand for residual fuel fell in 1982, as utilities (which use 40 percent of all residual fuel in the United States) continued to switch to such nonoil fuel sources as coal and nuclear power.¹¹ Domestic gasoline consumption fell 0.6 percent in 1982, as improved vehicle efficiency, the in-

crease in the diesel fleet, the economic recession, and continued conservation dampened consumption.¹² Retail competition among vendors of petroleum products in the U.S. market caused the average pump price of major brand gasoline to fall 7.2 cents per gallon in 1982 to \$1.281 per gallon, from \$1.353 per gallon in 1981.¹³

This competition in a weak market placed pressure on refiners and others to reduce prices paid for crude oil. As a result, those OPEC nations which held to the official posted prices, such as Saudi Arabia, shipped much smaller volumes of crude. Most OPEC nations, in particular, Iran, Libya, and Nigeria, offered discounts from the posted prices. Also, oil was available on the spot market throughout the year at prices below those officially posted.

The United States imported a larger percentage of crude from non-OPEC sources in 1982 than in previous years. Mexican and British crude prices dropped significantly, and Mexico moved ahead of Saudi Arabia as the leading foreign crude supplier to the United States, at 660,000 barrels per day. Saudi Arabia was next at 552,000, with Nigeria third at 538,000, and Britain fourth at 420,000.¹⁴

Food and beverages. Imported food prices rose 0.2 percent in 1982, while imported beverage prices rose 2.6

percent. The food index is one of the most volatile components of the all-import index because of the uncertainties associated with food production, the varying impact of weather conditions, and the great shipping distances for many food products imported into the U.S. market.

Imported meat prices fell 0.3 percent. International meat production declined, as livestock producers responded to the low profits that existed from mid-1979 to 1981 by reducing breeding herds and grain feeding fewer animals for slaughter. Beef and veal prices fell 3.5 percent in 1982, as U.S. consumers shifted to less costly substitutes. Pork was in abundant supply, as producers sought to provide a less expensive alternative to higher priced beef and veal.

Imported fish prices rose 1.7 percent: prices for fish in airtight containers fell 13.4 percent and shellfish rose 14.2 percent. The price of fish in airtight containers fell consistently during the year because of lower beef prices which reduced demand for such popular import products as canned tuna and anchovies, and lower operating costs (for example, price of fuel for boats). Price increases for such shellfish as lobster and shrimp were due to the relatively inelastic demand for these items and the traditional low supply levels.

The index for sugar, which was first published in the

Table 2. Change in selected export price indexes in 1982 and proportion of trade value

Commodity	Share of total 1980 trade value	Total change	First quarter	Second quarter	Third quarter	Fourth quarter	Commodity	Share of total 1980 trade value	Total change	First quarter	Second quarter	Third quarter	Fourth quarter
<i>Grain</i> ¹	8.341	-7.3	-3.4	-0.8	-5.8	2.7	Internal combustion piston engines, parts	1.697	6.7	2.0	1.2	2.9	.5
Wheat	2.943	-8.4	-7.2	-6.1	.7	4.4	Road vehicles and parts	6.726	6.1	2.1	1.7	1.3	.8
Hard winter ordinary wheat	1.243	-9.8	-8.1	-8.8	4.0	3.3	Motor vehicle parts	3.499	6.3	2.6	2.4	1.1	-.1
Barley	.094	-17.6	5.7	-2.3	-17.3	-3.7	Other transport equipment, excluding military and commercial aircraft	2.718	11.0	4.0	3.5	1.0	2.0
Yellow corn	3.956	-5.9	.5	2.0	-10.0	2.0	Aircraft and spacecraft parts	1.641	11.9	3.9	5.2		1.0
<i>Crude materials</i> ¹	10.948	(²)	(²)	(²)	(²)	(²)	Office machines and automatic data processing equipment	3.990	-3.6	-8	-8	-1.3	-7
Oilseeds and oleaginous fruit	3.024	-9.5	-2.5	.4	-8.4	1.0	<i>Miscellaneous manufactured articles</i> ¹	7.397	(²)	(²)	(²)	(²)	(²)
Soybeans	2.716	-10.5	-3.3	.4	-7.4	-6	Measuring and controlling instruments and apparatus	2.067	8.6	5.4	1.6	1.2	.3
Raw hides and skins	.482	-7.7	-2.4	.3	-1.8	-4.1	Photographic apparatus and supplies, optical goods, watches and clocks	1.187	3.3	3.6	-.3	.1	.0
Cork and wood	1.417	-9.1	4.9	-8.4	-3.7	-1.7	Miscellaneous manufactured articles, not elsewhere specified	2.730	(²)	(²)	(²)	(²)	(²)
Crude fertilizers	.234	-12.1	-7.8	.5	-6.4	1.4	Toys, games, and sporting goods	.470	5.2	1.1	1.8	.8	1.4
<i>Intermediate manufactured products</i> ¹	10.544	-1.8	-.1	-2.4	-.3	1.0	<i>Fuels and related products</i> ¹	3.691	(²)	(²)	(²)	(²)	(²)
Leather and furskins	.200	-12.9	-2.8	-4.5	-2.4	-3.8	Bituminous coal	2.088	1.5	2.8	.3	.1	-1.9
Paper and paperboard products	1.300	-5.7	.2	-3.0	-1.6	-1.4	<i>Chemicals</i> ¹	9.578	(²)	(²)	(²)	(²)	(²)
Paper and paperboard Kraft paper and paperboard	.998	-8.6	-.4	-4.1	-2.2	-2.1	Hydrocarbons and their derivatives	.799	-11.7	-2.5	-2.5	-6.1	-1.3
Non-metallic mineral manufacturers	1.038	(²)	(²)	(²)	(²)	(²)							
Glassware	0.109	11.2	3.9	2.6	3.2	1.0							
Nonferrous metals	2.280	-4.3	-2.7	-9.6	2.0	6.7							
Silver	.772	12.7	-5.9	-19.7	12.7	32.3							
Copper	.204	-1.6	-.6	-4.2	.3	3.0							
<i>Machinery and transport equipment</i> ¹	35.261	3.9	1.5	1.4	.6	.4							
Power generating machinery and equipment	3.943	4.8	1.9	1.1	1.7	.0							

¹ This category includes indexes other than those shown here. For all of the indexes available in each category, see *U.S. Import and Export Price Indexes*, USDL-83-77 (Bureau of Labor Statistics, Feb. 16, 1983).

² Not available.

Table 3. Foreign exchange rate changes of currencies of selected U.S. trading partners

Country and currency	Percent change relative to dollar in 1982 ¹
Australia/dollar	14.6
Belgium/franc	24.0
Brazil/cruzeiro	100.5
Canada/dollar	4.5
France/franc	20.0
Germany/deutschmark	7.1
Hong Kong/dollar	16.1
Ireland/pound	12.5
Italy/lira	15.9
Japan/yen	10.5
Malaysia/ringgit	4.7
Mexico/peso	465.2
Norway/krone	21.7
Singapore/dollar	4.8
United Kingdom/pound	15.1

¹ A positive change indicates that the dollar has strengthened (appreciated) versus the foreign currency, while a negative change means that the dollar has weakened (depreciated) against the foreign currency.

NOTE: Figures are derived from averages of certified noon buying rates in New York for cable transfers.

SOURCE: *Federal Reserve Bulletin* (Washington, D.C., Board of Governors of the Federal Reserve System), January 1983, p. A68., and June 1982, p. A68.

second quarter of 1982, rose by 12.8 percent for the last 9 months of the year. Underlying this increase was a 17.3-percent price decline in the second quarter, and a 36.6-percent rise in the third quarter. The fall was the result of plentiful inventories on world markets, and the inelasticity of demand by U.S. consumers of sugar. However, in late May, the U.S. Government imposed a sugar quota system apportioned by country of origin, discontinuing the combination of duty and import fee that had been levied on sugar imports. The quotas were followed by a runup in prices of raw sugar delivered to the United States in the third quarter, as the import fee was discontinued and exporting nations which possessed a quota allocation to ship to the United States raised their prices to new equilibrium levels.

The index for coffee, tea, and cocoa fell by 0.8 percent in 1982. Cocoa prices fell continuously over the year, as abundant supplies from other countries, especially the Ivory Coast, were available on the world market. Coffee prices rose 6 percent during the year, rising during the first and last quarters, and declining during the second and third, or warmer quarters. This is a normal pattern because coffee consumption declines during hot weather. Tea prices rose 4.6 percent for the year, with prices higher in the summer months when demand for tea is greatest.

The small rise in the beverages index resulted from slight rises for imported beer (1.7 percent) and distilled alcoholic beverages (2.4 percent).

Difficult year for imported machine tools

The 1.3-percent decline in the machinery and transport equipment index occurred primarily during the second half of 1982; the index increased slightly in the first half. The decline in domestic business fixed investment¹⁵

and reduced production levels in basic industries, along with the strong dollar, depressed prices. Many consumer end-use products are included in this index: autos, motorcycles, and household appliances, for example. Also included are many important components of manufacturing processes: electric motors, air pumps, compressors, valves, and roller bearings. These products were particularly affected by the 1982 downturn in U.S. business investment.

Prices for imported autos declined 0.1 percent in 1982, the net result of two nearly offsetting factors. The first was the competition which resulted from the dramatic slump in new car sales in the United States. In addition to the decline in consumer spending, high financing costs also contributed to the reduction in sales of new cars to 8 million, the lowest level since 1961.¹⁶ These factors tended to lower prices. In the meantime, Japan, which accounted for 22.6 percent of all new car sales in the United States, continued the voluntary self-restraint quotas on cars it exports to the United States. This voluntary quota limited Japan to exports of 1.68 million cars to the United States during 1982. These cars were sold, indicating that the quotas were effective in limiting sales and, therefore, were a source of upward pressure on import prices of Japanese cars. Total import penetration of the U.S. auto market was 36.1 percent in 1982 (including imports from Canada under the U.S.-Canada Auto Parts Trade Agreement), up from 33.3 percent in 1981.¹⁷ During 1982, numerous coproduction agreements were entered into between U.S. and foreign auto manufacturers, and between foreign manufacturers. These agreements involved the production of autos for the U.S. market using production facilities located in the United States and other countries.

The index for metalworking machinery declined 5.1 percent in 1982. The U.S. economic downturn, which cut business investment, and the strong appreciation of

Table 4. Imported crude oil as a percent of total U.S. crude oil supply

[Millions of barrels per day]

Year	Total supply	Crude oil imports	Domestic crude oil production	Imports as a percent of total supply
1970	10.50	1.32	9.18	12.6
1971	10.71	1.68	9.03	15.7
1972	11.22	2.22	9.00	19.8
1973	12.02	3.24	8.78	27.0
1974	11.86	3.48	8.38	29.3
1975	12.11	4.10	8.01	33.8
1976	13.07	5.29	7.78	40.5
1977	14.48	6.61	7.87	45.6
1978	14.71	6.36	8.35	43.2
1979	14.70	6.52	8.18	44.4
1980	13.47	5.26	8.21	39.0
1981	12.97	4.40	8.57	33.9
1982	12.13	3.46	8.67	28.5

SOURCE: *Annual Report to Congress*, Vol. II (Washington, D.C., Energy Information Administration, 1981), p. 51, and *Monthly Energy Review* (Washington, D.C., U.S. Department of Energy, February 1983), p. 34.

the dollar against the yen were major factors behind the price drop.

The year was difficult for the machine tool industry. Because of the downturn in investment, new orders for metalcutting and metalforming machine tools declined 49.1 percent from the \$2.9 billion level established in 1981.¹⁸ Imports of metalworking machinery declined in absolute terms, but gained a larger share of a smaller market, as import penetration (in dollar value) reached a record 27 percent in the first 9 months of 1982.¹⁹ Import penetration was 16.7 percent in 1977 and 21.7 percent in 1978; by 1981, it had reached 26.5 percent. Of the import market, the share accounted for by Japan increased from 27 percent in 1977 to 46.4 percent in 1981, and declined slightly to 42.2 percent in a weakened market in 1982.²⁰ For the year, imports of products in metalworking machinery were approximately double the value of U.S. exports, as the U.S. trade deficit in this area continued to widen.

Japanese manufacturers have steadily narrowed the U.S. lead in machine tool technology, and in the implementation of cost-reducing measures and policies. During 1982, large U.S. machine tool makers entered licensing agreements or joint ventures with foreign concerns in an effort to recapture their technological lead in several product lines. Also, in response to the downturn in the industry, several less profitable smaller machine tool firms merged with larger firms.²¹

The price index for imports of electrical machinery dropped 2.9 percent in 1982, as the downturn in domestic construction activity and the slump in capital investment dampened demand for these products. The decline in residential construction reduced demand for electric appliances, while the decrease in commercial construction reduced demand for transformers. The decline in capital spending reduced demand for such important electric products as rectifiers, inductors, circuit switching equipment, and various types of integrated circuits and electronic components.

In addition, lower costs for such important inputs as copper, aluminum, steel, and tantalum helped in lowering production costs, while the dollar's strong appreciation against the currencies of major producing nations in the Far East and Western Europe helped exporters in those areas to lower the prices of their exports to the United States.

Prices fell across the entire spectrum of products in the telecommunications equipment index, as competition for U.S. sales among manufacturers in the Far East spurred the 6.8-percent decline in this index. Loudspeaker prices led the decline, as Taiwanese firms sought to gain greater U.S. market share and slashed prices to compete with Japanese firms. As a result, an increasing number of loudspeakers were imported from Taiwan. Prices of stereos declined because of slack de-

mand; sales of videotape recorders continued to increase, as consumers purchased videotape recorders rather than stereos. Foreign producers also cut prices of color televisions, as they competed heavily for sales in the U.S. market. The fact that the dollar appreciated significantly against the currencies of Taiwan and Japan helped these two largest suppliers of telecommunications equipment to the United States to lower their prices here.

Quota on steel from European Community

Intermediate manufactured articles. Steep declines in prices for imported steel and nonferrous metals led the 7.5-percent decline in intermediate manufactured products. These products include metals, cork, wood, textiles, glassware, paper, paperboard, and other basic inputs into manufacturing processes.

Import prices for iron and steel fell 12.6 percent in 1982, as a sharp drop in demand and the removal of the "trigger price mechanism" (which set minimum prices on imported steel) in January 1982 placed downward pressure on prices. Demand for steel is closely related to the overall level of production in the general economy; hence, when industrial output declined during the economic downturn, steel mills experienced a slow year. By December 1982, U.S. mills were operating at 29.8 percent of capacity.²² Import penetration of the U.S. market was 21.8 percent in 1982, and U.S. producers sold steel at discounts of up to \$100 per ton off list prices to compete with imported steel for available business.²³ (See table 5.)

The trigger price mechanism set minimum prices on imported steel based on production costs in Japan. Steel sold below this "trigger price" was presumed to be sold at less than cost, triggering an investigation by the U.S.

Table 5. Domestic steel production and import penetration

Year	Raw steel production by U.S. manufacturers (thousands of net tons)	Import penetration (percent) ¹
1970	131,514	13.8
1971	120,443	17.9
1972	133,241	16.6
1973	157,099	12.4
1974	145,720	13.4
1975	116,642	13.5
1976	128,000	14.1
1977	125,333	17.8
1978	137,031	18.1
1979	136,341	15.2
1980	111,835	16.3
1981	120,828	19.1
1982	74,577	21.8

¹ Calculated as follows:

$$\text{Import penetration} = \frac{\text{Steel imports}}{\text{Apparent supply}}$$

where:

Domestic shipments + Steel imports + Exports = Apparent supply

SOURCE: American Iron and Steel Institute Annual Statistical Report (Washington, D.C., American Iron and Steel Institute, 1982) p. 8.

Department of Commerce. If the investigation determined that steel was being sold below cost, countervailing duties could be imposed. With the trigger price mechanism withdrawn in January 1982, the price floor for steel imports was removed, and steelmakers in other countries sold their products in the United States at prices below the discounted prices offered by domestic producers. Seven U.S. steelmakers charged that producers in 11 countries were selling subsidized steel in the United States. The Commerce Department then shifted from monitoring the trigger price mechanism to investigating specific charges. The investigation resulted in an agreement in October which placed quotas on imports from the European Community nations. No major trade complaints were made against other major steelmaking nations such as Japan, Brazil, and Korea.

For nonferrous metals producers worldwide, 1982 was a difficult year. Import prices of nonferrous metals dropped 14 percent in 1982—a sharp drop of 12.6 percent in the first half was followed by a modest 1.6-percent decline in the second half. Sharply rising silver prices in the second half helped to slow the fall in import prices for the nonferrous metals group as a whole.

Demand for nonferrous metals is closely related to the demand for the finished products of which these metals are a basic input. Thus, reduced levels of production in such industries as construction, autos, and machine tools, combined with abundant inventories of nonferrous metals, led to price declines for most of 1982. For copper, lead, and nickel, market prices were lower in real terms in 1982 than they were during the Great Depression, and were lower than production costs for many world producers.²⁴ The rise in silver prices in the second half was due to speculation and lower financing costs. The index for silver and platinum products, which accounts for 33.2 percent of the weight of the nonferrous metals index, rose 26.6 percent in the second half of 1982. Other nonferrous prices (most notably copper) began to firm during the last quarter of the year, as inventories shrank and financing costs decreased.

Imported textile prices declined 5.6 percent in 1982, a result of lowered world demand and excess production capacity. Woven cotton fabrics declined 6.7 percent; woven fabrics of manmade fibers, 6.8 percent. The overcapacity problem was exacerbated during the year as the People's Republic of China and the Eastern European nations added capacity for manmade fiber production. Falling petroleum feedstock prices also contributed to the price declines for manmade fibers.

Technology spurs fall in watch prices

The miscellaneous manufactured articles index rose 0.3 percent in 1982. This index includes many products with important end uses for consumers and industry,

such as clothing, furniture, quartz watches, medical instruments, and sporting goods. Rising prices for gold and silver coins in the second half placed substantial upward price pressure on the index for miscellaneous manufactures. However, several key index components posted price declines: the index for footwear fell by 2.3 percent, and watches and clocks fell by 13.0 percent.

Watch and clock prices declined steadily, as new technologies like computer chip control and quartz oscillation were engineered into mass-produced products, with resulting lower unit costs. In addition, U.S. consumers curtailed spending on such discretionary items as watches and clocks, keeping competitive pressure on importers.

The decline in the footwear index was the result of lower prices for petro-chemical and leather inputs, and the decrease in demand for running shoes. In addition, the appreciation of the dollar against the currencies of the major producing nations in the Far East also helped lower prices. Finally, low labor costs in the nations of the Far East and the highly competitive U.S. footwear market placed additional downward pressure on prices.

Exports: record grain production, lower demand

U.S. grain export prices fell 7.3 percent in 1982. This drop and the 8-percent decline in grain quantities exported represented a double blow to 1982 U.S. farm income. Prices fell in this index for the first three quarters, and then rose 2.7 percent in the last quarter. The 1982 decline in the grain index was led by drops in its two largest components, wheat and yellow corn, which fell by 8.4 and 5.9 percent. The drop in U.S. grain export prices resulted from historically high domestic inventories, back-to-back record U.S. wheat and feed grain harvests, and lower levels of world demand for U.S. grain products. As a result of the imbalance between demand and supply for U.S. grain, grain exports declined to 51 percent of total world grain trade, down from 54 percent in 1981 and 58 percent before the 1980 grain embargo. (See table 6.)

U.S. grain production set a record for the second consecutive year, largely due to U.S. Government programs which tend to stabilize prices by withholding excess production from the market, loaning the farmer part of the expected proceeds until prices rise sufficiently to warrant release for sale. This system resulted in excessive domestic reserve grain stockpiles in 1982. In addition, 1982 world grain production set a record for the second consecutive year.²⁵ Canada, the European Community, the People's Republic of China, Turkey, and Argentina produced abundant wheat crops in 1982. The United States and Eastern Europe had record feed grain crops, and production improved from the previous year in the U.S.S.R. and the European Community.

The most important factor limiting demand for U.S.

Table 6. Summary of world and U.S. grain production and trade

[Millions of metric tons]

Item	July 1978 to June 1979	July 1979 to June 1980	July 1980 to June 1981	July 1981 to June 1982	July 1982 to June 1983 ¹
World production:	1200.3	1164.1	1169.9	1212.0	1259.9
Wheat	446.7	422.8	440.6	447.2	471.4
Coarse	753.6	741.3	729.3	764.8	788.5
U.S. production:	270.4	296.8	263.0	325.2	331.9
Wheat	48.3	58.1	64.6	76.2	76.4
Coarse	222.1	238.7	198.4	249.0	255.5
World trade:	162.2	186.9	199.7	205.5	197.0
Wheat	72.0	86.0	94.2	101.8	101.9
Coarse	90.2	100.9	105.5	103.6	95.1
U.S. exports:	89.2	108.8	114.3	110.5	101.3
Wheat	32.3	37.2	41.9	49.1	43.5
Coarse	56.9	71.6	72.4	61.4	57.8
U.S. exports as a per- cent of world trade:	55.0	58.2	57.2	53.8	51.4
Wheat	44.9	43.3	44.5	48.2	42.7
Coarse	63.1	71.0	68.6	59.3	60.8
U.S. exports as a per- cent of U.S. produc- tion:	33.0	36.7	43.5	34.0	30.5
Wheat	66.9	64.0	64.9	64.4	56.9
Coarse	25.6	30.0	36.5	24.7	22.6

¹ Data for January to June 1983 are estimated.SOURCE: *Foreign Agricultural Circular* (Washington, D.C., U.S. Department of Agriculture, Foreign Agricultural Service, Jan. 17, 1983), pp. 22-23.

grain exports was the decline in sales to the Soviets. Since the 1980 embargo, the Soviets have purchased much less U.S. grain, buying only the minimum required amount under the recently renewed Long-Term Agreement. To meet their needs, the Soviets have increased purchases from Canada, the European Community, Australia, and Argentina. Another factor limiting demand was that many Third World nations (especially those which were debt-affected) could not afford to purchase grain in 1982 because of economic difficulties. Finally, many traditional importers of U.S. grain improved their grain production, and as a result, bought less from the United States.

Demand off for exported crude materials

Most major components of the crude materials product category showed sizable declines in 1982. Demand for these products, which are used in the early stages of production processes, was sharply curtailed by the worldwide slump in industrial production. Key indexes which posted declines were raw hides and skins (-7.7 percent), cork and wood (-9.1 percent), crude fertilizers (-12.1 percent), and soybeans (-10.5 percent).

The 10.5-percent drop in soybean prices in 1982 was paced by a 7.4-percent decline in the third quarter. World soybean production was up 9.8 percent in 1982, while the United States, which accounts for two-thirds of world production, increased soybean output 14 percent above 1981 levels.²⁶ U.S. exports of soybeans increased 21 percent in 1982.

Prices for raw hides and skins fell 7.7 percent in 1982, as European import barriers and the economic slowdown there cut demand sharply in this major market. U.S. producers faced strong competition for available business from Argentinian firms, which sold hides and skins on the world market at low prices in order to gain foreign exchange for the debt-affected Argentine economy. Another factor depressing prices of raw hides was the 14 percent rise in U.S. cattle slaughter, which contributed to plentiful supplies.

Cork and wood prices fell in the last three quarters after rising 4.9 percent in the first quarter. The large domestic timber surplus was the major factor in the 9.1-percent price decline for the year. Domestic timber producers generally sell most of their output on the U.S. market; wood is exported primarily when demand is weak in the United States. With U.S. construction activity depressed in 1982, U.S. wood producers sold their products to buyers in the major markets of Japan and Western Europe. Demand was down in Japan because of low levels of housing starts: the economic downturn in Western Europe reduced demand there. The demand for high-priced wood for furniture and cabinets in Italy, a major producer of these products, was also slack. As a result, U.S. producers had to cut prices in order to sell wood.

Crude fertilizer prices fell 12.1 percent, a result of foreign competition and reduced demand from the agricultural sector. Crude fertilizers are used extensively on feed grains to enhance quality and aid in early maturity of crops. Because of abundant world grain supplies, demand for crude fertilizers fell. Competition from such major phosphate producers as Morocco and the U.S.S.R. also provided downward pressure on fertilizer prices.

Prices up for machinery, transport equipment

Machinery and transport equipment accounts for 35.3 percent of the value of all U.S. merchandise exports. Overall, this export price index rose 3.9 percent in 1982, increasing 2.9 percent in the first half. Because many of the products in this index require a high degree of technical sophistication, the United States has traditionally been a major exporter of products in this category. In 1982, the strong dollar and competition for sales during the worldwide economic downturn placed considerable moderating pressure on machinery and transport equipment prices. Important components which increased were internal combustion piston engines (6.7 percent), motor vehicle parts (6.3 percent), and parts for aircraft and spacecraft (11.9 percent). The index for office machines and automatic data processing equipment declined 3.6 percent in 1982.

Strong demand for aircraft engines and parts was an important factor in the increase in the index for internal combustion piston engines. Demand for these aircraft

products, especially parts, is inelastic because of the specialized nature of aircraft equipment. Prices for automotive and marine engines increased only marginally for the year, as demand by automobile manufacturers for these engines plummeted.

Sales of motor vehicle parts normally flourish during economic downturns, which helps to explain the 6.3-percent increase in this index in 1982. Replacement parts demand is inversely related to new car sales; thus, as world car demand fell in 1982, replacement parts supply business improved. The trend toward internationalization of design and sourcing of auto components continued in 1982. U.S. parts shipments to Mexico have increased substantially since 1977, and U.S. firms have traditionally exported large amounts of parts to Canada. Most of the rise occurred during the first half, as the index rose 2.6 percent in the first quarter and 2.4 percent in the second.

The 11.9-percent rise in the index for parts for aircraft and spacecraft consists of a 9.5-percent increase in the first half and a 2.3-percent increase in the second half. The overall increase was due to high demand levels and the high price inelasticity of demand for U.S. production. The smaller increase in the second half of the year was due to the dollar's moderating effect on export prices. A trend which grew in 1982 in the aerospace industry was counterpurchasing (also called offset), in which U.S. suppliers are sometimes required to buy back products from their customers, either for the suppliers' own use or for sale to others. This is required because the sale of aircraft and parts represent significant items in many countries' balance of payments accounts.

The 3.6-percent drop in prices for office machines and automatic data processing equipment followed a 4.9-percent price rise in 1981. The decreases were the result of efforts by U.S. firms to maintain competitive pricing, as the strong dollar pushed up prices of U.S. exports in foreign markets, and to increased production efficiencies in the United States.

Manufactured products' prices mixed

Intermediate manufactures. Export prices for intermediate manufactured products fell 1.8 percent in 1982, led by declines in the indexes for nonferrous metals (-4.3 percent), leather and furskins (-12.9 percent), and paper and paperboard (-5.7 percent). Moderating influences were exerted by the indexes for glassware, up 11.2 percent, and the index for silver, up 12.7 percent.

The slumping world economy, competition from South American producers, and import barriers in foreign markets were major factors in the large decline in the price level of the leather and furskins index. U.S. manufacturers are vitally dependent on the export market, as there are few U.S. markets for leather manufac-

tures, other than the footwear industry. A bright note for exporters was the increase in leather exports in the form of wet blues that are further worked prior to being made into a finished product.

Exporters of paper and paperboard products faced stiff foreign competition and a lack of demand in Japan and Western Europe, the major markets for these products. The products in this index are closely tied to conditions in the packaging industry. In turn, the sales of the packaging industry are closely linked to gross national product growth. The decline in the export price index for paper and paperboard products was led by a 21.3-percent decline in export prices for Kraft paper and paperboard. Kraft is a heavy-duty paper which in unbleached form is used for shopping bags and many other applications. The Scandinavian nations and Canada, also major suppliers of Kraft products, competed intensely with U.S. exporters for the limited business in the major markets.

The 11.2-percent rise in the glassware index was the result of higher export prices for kitchen, decorative, laboratory, and pharmaceutical glass products. U.S. firms have a reputation for quality in the manufacture of higher-priced pharmaceutical and laboratory glassware. The 3.9-percent rise in the glassware index in the first quarter was due to the fact that many U.S. firms make one annual price adjustment on the first of the year.

U.S. nonferrous metals producers sustained large losses in 1982, as reduced sales led to excessive inventories and reduced prices. Exports fell for most metals as lack of demand in basic industries and high financing costs drove prices steadily downward for most of the year. The nonferrous index fell 12 percent in the first half, and rose 8.8 percent in the second half. The sharp runup in silver prices in the second half of 1982 was the key factor moderating the fall in export prices for the nonferrous metals group as a whole.

World prices during most of 1982 were below U.S. production costs for aluminum, copper, molybdenum, and lead. Many U.S. nonferrous producers shut down production operations for all or part of the year because of the low prices and high inventory levels. The silver index, which has 34 percent of the weight of the nonferrous metals index, rose 12.7 percent in the third quarter and 32.3 percent in the fourth, as lower interest rates and speculation fueled higher world prices. These third and fourth quarter increases followed a 24.4-percent price drop in the first half of the year. In the second half, copper prices began to stabilize.

Miscellaneous manufactures. Prices for the major components in the miscellaneous manufactured articles category rose in 1982. U.S. firms have a technological edge in the manufacture of many of the products in this index,

and were often able to pass through price increases. Increases were led by prices for measuring and controlling instruments and apparatus (8.6 percent), prices for photographic apparatus and supplies, optical goods, watches, and clocks (3.3 percent), and prices for toys, games, and sporting goods (5.2 percent).

Prices in the index for measuring and controlling instruments and apparatus rose 5.4 percent in the first quarter, and then rose by much smaller amounts in succeeding quarters. The industry practice is to raise prices at the beginning of the year. The price increase for the year is a reflection of the technological efficiency that these devices bring to the industrial workplace, and the consequent high level of demand for them. Export price rises were restrained slightly by the worldwide slowdown in industrial investment and capital formation and the strong dollar.

Film, cameras, and related photographic equipment account for the bulk of the weight in the index for photographic apparatus and supplies, optical goods, watches, and clocks. Most producers of photographic supplies adjust their prices in the beginning of the year. Viewed in this light, the 3.6-percent rise in the index in the first quarter was marginal. It was followed by a small net decrease during the last three quarters of 1982, reflecting slack worldwide demand and the strong dollar.

The index for toys, games, and sporting goods rose 2.9 percent in the first half and 2.2 percent in the second half. The increase resulted from the traditional U.S. technological lead in the manufacture of most sporting equipment,²⁷ and a comparative advantage in software technology for video games, both of which helped U.S. firms to raise prices in a period of high demand for these products. Video game export prices rose in the first half, as new models were introduced with foreign language audio. In the second half of the year, video game prices remained unchanged. Baseball and softball equipment prices rose in 1982, as the oversupply on

world markets ended. The international popularity of golf grew in 1982, and golf equipment prices rose. Exercise equipment prices also were up in 1982.

Coal demand off; chemicals down

The index for bituminous coal rose in the first three quarters, followed by a decrease of 1.9 percent in the last quarter, for a net increase of 1.5 percent for the year. The small annual price rise reflected a disappointing year for U.S. coal exporters. The year had opened with high expectations, as foreign customers were lined up at U.S. ports to load coal. However, with the worldwide recession and a growing number of suppliers creating a coal surplus, U.S. coal exports fell 4.5 percent in volume in 1982, as compared with 1981. Poland reentered the coal market in 1982, and South Africa and Australia used larger ships to lower unit shipment charges to make up for the longer distances to the major markets. U.S. firms have historically been the highest cost shippers of coal, depending on reliability and the capacity to deliver additional tonnages to gain orders. However, in 1982, a buyers' market existed, and U.S. firms competed more heavily on price.

The index for hydrocarbons and their derivatives fell 11.7 percent in 1982, with 6.1 percent of the drop occurring in the third quarter. A major contributor to this decline was lower prices for petroleum feedstocks, which are an important cost element for chemical products. Moreover, projections of increasing demand had led U.S. and foreign firms to build extensive new capacity in the last 10 years. Much of the new capacity came on line just as worldwide demand by the construction and auto sectors began to decline. Because chemical plants are highly capital intensive, production, even at slim profits or slight loss levels, is important in the short run to cover high fixed costs. Because chemicals of the same specifications are virtually identical regardless of source, lower prices were used to maintain volume in 1982. □

FOOTNOTES

¹ In this article, the "all-import index" refers to the all-commodities import price index, excluding chemicals. This measure accounts for 96.5 percent of the value of all imports. A new all-import index which includes chemicals and covers 100 percent of the value of all imports is now available, starting with fourth quarter 1982 data.

² For details on the value of the U.S. dollar against currencies of other nations, see *Federal Reserve Bulletin* (Washington, Federal Reserve Board, January 1983), p. A68.

³ Information on U.S. trade deficits is from *U.S. Department of Commerce News*, No. 83-06 (Washington, U.S. Department of Commerce, Bureau of Economic Analysis, Feb. 3, 1983), p. 5.

⁴ Eileen Powell, "U.S. Trade Gap for Last Year Was \$8.09 Billion," *The Wall Street Journal*, Mar. 18, 1983, p. 4.

⁵ The share of final goods production that is accounted for by gross trade (merchandise imports plus merchandise exports) is calculated as follows:

$$\frac{\text{Merchandise Imports} + \text{Merchandise Exports}}{\text{Final Goods} + \text{Merchandise Imports} + \text{Merchandise Exports}} \times 100$$

Computed using data from *Survey of Current Business* (Washington, U.S. Department of Commerce, Bureau of Economic Analysis), various issues.

⁶ Data are from Bureau of the Census, U.S. Department of Commerce.

⁷ For a detailed look at import-export price movements in the first half of 1982, see Mark J. Johnson, "U.S. import and export price indexes show declines during first half," *Monthly Labor Review*, January 1983, pp. 17-23.

⁸ Import price indexes are weighted by 1980 import values and are published on an f.o.b. (free-on-board) foreign port or c.i.f. (cost, insurance, and freight) U.S. port basis. Export price indexes are weight-

ed by 1980 U.S. merchandise export trade values and are published on an f.o.b. factory or f.a.s. (free-alongside-ship) U.S. port basis. See "International Price Program" (Washington, Bureau of Labor Statistics).

⁹ Robert J. Beck, "Demand, Imports to Rise in 1983; Production to Slip," *Oil and Gas Journal*, Jan. 31, 1983, p. 71.

¹⁰ *Annual Report to Congress, Vol. II* (Washington, Energy Information Administration, 1981), p. 51, and *Monthly Energy Review* (Washington, U.S. Department of Energy, February 1983), p. 34.

¹¹ Beck, *op. cit.*, p. 76.

¹² *Ibid.*, p. 74.

¹³ See "Gasoline Average Prices Per Gallon, U.S. City Averages Index," in *Consumer Prices: Energy and Food*, USDL-83-35 (Washington, Bureau of Labor Statistics, Consumer Price Index, January-December 1982).

¹⁴ Beck, *op. cit.*, p. 73.

¹⁵ Fixed business investment by U.S. businesses declined during 1982 from 1981 levels, and ended the year at a lower level than it had begun:

	<i>Fixed business investment</i>
1981:	
I	169.7
II	170.1
III	173.9
IV	174.2
1982:	
I	172.0
II	166.7
III	163.4
IV	160.9

(All figures are in billions of 1972 dollars, seasonally adjusted at annual rates.) See *Survey of Current Business* (Washington, U.S. Department of Commerce, February 1983).

¹⁶ *Automotive News*, Jan. 10, 1983, p. 46.

¹⁷ *Ibid.*, and *FSI Report* (Detroit, Mich., Motor Vehicle Manufacturers' Association, Feb. 7, 1983), p. 1.

¹⁸ Gerry Khermouch, "Machine Tool Orders in December Jump 38% But Lag December, 1981," *American Metal Market/Metalworking News Edition*, Jan. 31, 1983, p. 4.

¹⁹ The National Machine Tool Builders' Association calculates the percentages based on data contained in Bureau of the Census, "Current Industrial Report for Metalworking Machinery," MQ-35W; and IM146; EM522. This is the most conservative way of calculating the figure because imports are valued at the foreign port; these figures do not include shipping costs, duties, or commissions.

²⁰ Cynthia Jabs, "Japanese gain growing slice of market," *American Metal Market/Metalworking News Edition*, June 15, 1981, p. 14-15A, and *National Machine Tool Builders' Association: U.S. Foreign Trade in Machine Tools—Statistical Reports* (McLean, Va., Machine Tool Builders Association), various issues, 1977-82.

²¹ "The vise tightens on toolmakers," *Business Week*, Dec. 6, 1982, pp. 63-64; and "Machine Tools and Accessories," *U.S. Industrial Outlook 1983*, p. 20-1 to 20-8.

²² "Steel: The Prospect of Major Bankruptcies," *Business Week*, Jan. 17, 1983, p. 64.

²³ "Steel Recovery Appears to Have Started But May Trail Earlier, Weak Forecasts," *The Wall Street Journal*, Feb. 10, 1983, p. 16.

²⁴ "The Crisis That Endangers Phelps Dodge," *Business Week*, July 26, 1982, p. 59.

²⁵ *Foreign Agriculture Circular—Grains* (Washington, U.S. Department of Agriculture, Jan. 17, 1983), p. 2.

²⁶ *World Agricultural Supply and Demand Estimates* (Washington, U.S. Department of Agriculture, Feb. 14, 1983), pp. 3-4.

²⁷ *Summary of Trade and Tariff Information—Sporting Goods* (Washington, International Trade Commission, June 1981), pp. 23, 31.



Technical Note

Using a leading employment index to forecast unemployment in 1983

GEOFFREY H. MOORE

Year-to-year changes in the unemployment rate may be forecast with moderate accuracy using the leading employment index constructed by the Center for International Business Cycle Research at Rutgers University. The index consists of five components that typically lead, or move in advance of, changes in employment and unemployment. The components are the average workweek and overtime hours in manufacturing industries; the number of initial claims for unemployment insurance; the layoff rate for all workers; and the ratio of the numbers of voluntary to involuntary part-time employees. Because each of these factors reflects employment decisions that are usually made early in the process that results in a larger or smaller number of unemployed, the index is relevant to the future movements in unemployment.

Table 1 demonstrates the ability of the index to forecast changes in unemployment for the year ahead. For this purpose, the growth rate in the index was calculated by taking the ratio of the current month's index to the average index over the preceding 12 months and expressing this as an annual rate. This growth rate is called the "6-month smoothed rate" because the interval covered is approximately the previous 6 months. It is less subject to erratic movements than the ordinary 6-month change because the 12-month average used as the base is more stable than the single-month figure 6 months earlier.

Column 3 in the table shows the 6-month smoothed growth rate for each October from 1969 through 1983. These rates are available as of the first Friday in November, when the October index is computed. Columns 4 and 5 give the rates for November and December.

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These figures provide the basis for forecasts that can be made early in November, December, or January for the year ahead.

The information from 1969 to 1982 was used to estimate the average relationship between the leading index growth rates and the percentage-point change in the unemployment rate for the year ahead. The relationship is, of course, inverse: when the leading index rises rapidly, unemployment can be expected to decline. Roughly speaking, the change in unemployment is about one-fourth to one-fifth as large as the leading index growth rate.

Columns 6 through 8 of table 1 give the estimated changes in unemployment based upon regression analysis; columns 9 through 11 measure the errors in these forecasts. For forecasts made using the October index, the average error was 0.5 percentage point. With November indexes, the average error was 0.4 of a percentage point, and likewise with December indexes. Chart 1 compares the November forecast changes with the actual changes.

For 1982, the average annual unemployment rate was 9.7 percent, 2.1 points higher than the 1981 average. This compares with a forecast increase of 1.7 points based on the October 1981 leading index growth rate. The November forecast came a bit closer, 1.9 points, and the December forecast actually hit the target, 2.1 points.

For 1983, the December 1982 leading index yields a forecast increase in the unemployment rate of 0.6 percentage point. This would put the average unemployment rate for 1983 at 10.3 percent, slightly below the December 1982 level, 10.8 percent. Because all forecasts are subject to error, it would be advisable to place this within a range based upon the average error, ± 0.4 points. On this basis, the 1983 figure is likely to lie within the range 9.9 percent to 10.7 percent.

Can the leading index forecast the year-to-year change in unemployment any better than can the unemployment rate itself? To test this, the 6-month smoothed change in the unemployment rate as of October, November, or December can be used to forecast the next year's annual change. Regressions were constructed along these lines for the period 1969-81, and the results

Table 1. Forecast changes in the unemployment rate, using changes in the leading employment index, 1969-83

Year	Unemployment rate		Leading employment index, 6 month smoothed percent change, as of preceding—			Forecast year-to-year change in unemployment rate, ¹ as of —			Error in forecast, as of —		
	Level (1)	Change from preceding year (2)	Oct. (3)	Nov. (4)	Dec. (5)	Oct. (6)	Nov. (7)	Dec. (8)	Oct. (9)	Nov. (10)	Dec. (11)
1969	3.5	-	-	-	-	-	-	-	-	-	-
1970	4.9	1.4	-2.3	-1.8	-2.5	0.8	0.6	0.7	-0.6	-0.8	-0.7
1971	5.9	1.0	-8.5	-7.4	-5.8	2.4	1.8	1.4	1.4	0.8	0.4
1972	5.6	-0.3	1.2	1.2	2.9	-0.1	-0.1	-0.4	0.2	0.2	-0.1
1973	4.9	-0.7	4.2	4.6	4.0	-0.9	-0.8	-0.6	-0.2	-0.1	0.1
1974	5.6	0.7	0.9	-0.7	-3.1	0.0	0.4	0.8	-0.8	-0.3	0.1
1975	8.5	2.9	-6.7	-11.1	-11.9	1.9	2.7	2.6	-1.0	-0.2	-0.3
1976	7.7	-0.8	3.1	5.9	7.8	-0.6	-1.1	-1.4	0.2	-0.3	-0.6
1977	7.1	-0.6	0.0	0.2	0.2	0.2	0.2	0.2	0.8	0.8	0.8
1978	6.1	-1.0	2.5	3.1	2.3	-0.5	-0.5	-0.3	0.5	0.5	0.7
1979	5.8	-0.3	1.5	0.8	0.2	-0.2	0.0	0.2	0.1	0.3	0.5
1980	7.1	1.3	-2.7	-3.8	-3.8	0.9	1.0	1.0	-0.4	-0.2	-0.3
1981	7.6	0.5	-2.2	0.8	1.6	0.8	0.0	-0.1	0.2	-0.5	-0.6
1982	9.7	2.1	-5.8	-7.7	-9.3	1.7	1.9	2.1	-0.4	-0.2	0.0
1983	-	-	-5.5	-3.8	-2.1	1.6	1.0	0.6	-	-	-

¹ As derived from regression equations based on 13 observations, 1970-82, as follows:
 Change in unemployment rate = 0.2 - (0.26) (Leading index growth rate, October);
 Change in unemployment rate = 0.2 - (0.22) (Leading index growth rate, November);
 Change in unemployment rate = 0.2 - (0.20) (Leading index growth rate, December).

NOTE: The leading index used in this table is the index without the target trend adjustment.
 SOURCE: Center for International Business Cycle Research, Rutgers University, Newark, N.J., Jan. 10, 1983.

were compared with corresponding estimates based on the leading employment index:

Reference month	Leading employment index base		Unemployment rate base	
	r ²	Mean absolute error	r ²	Mean absolute error
October	0.71	0.5	0.39	0.8
November . . . .	.84	.4	.51	.7
December . . . .	.84	.4	.68	.5

The r²'s based on the unemployment rate are smaller than those based on the leading index, and the mean errors are larger. The growth rate in unemployment for December 1982 was 2.4 percentage points, and this yields a forecast increase of 1.9 percentage points for 1982-83, or an unemployment rate averaging 11.6 percent for 1983 as a whole. This is considerably higher than the 10.3-percent forecast for 1983 based on the leading index for December. It remains to be seen which will be closer to the mark, but if experience is any guide, the leading index forecast will be more accurate because it takes into account changes in the employment situation that are reflected in the unemployment rate only with a lag.

Another standard of comparison against which to assess the accuracy of the leading index forecasts is the record of other forecasters. The comparison cannot be precise, for several reasons. One is that the errors obtained by fitting an equation to historical data are likely to be smaller than those that would have been obtained on an *ex ante* basis, which is what the forecasters' records show. Another is that the available records generally show quarterly rather than annual

forecasts. Still another point is that the average error of a group of forecasts is generally smaller than those of most of the individuals in the group, or those based on a single method of forecasting. Nevertheless, the comparison is of some interest, and one such set of records is shown in table 2.

The errors in forecasts of unemployment for one quarter ahead are generally smaller, averaging about two-tenths of a percentage point, than those for two, three, or four quarters ahead, which average about four-tenths of a point. In view of the problems of comparability mentioned above, about all one can say is that the errors in the leading index forecasts are of the same order of magnitude as those made by forecasters using other methods.

Table 2. Average absolute error in selected forecasts of the unemployment rate, 1976-80

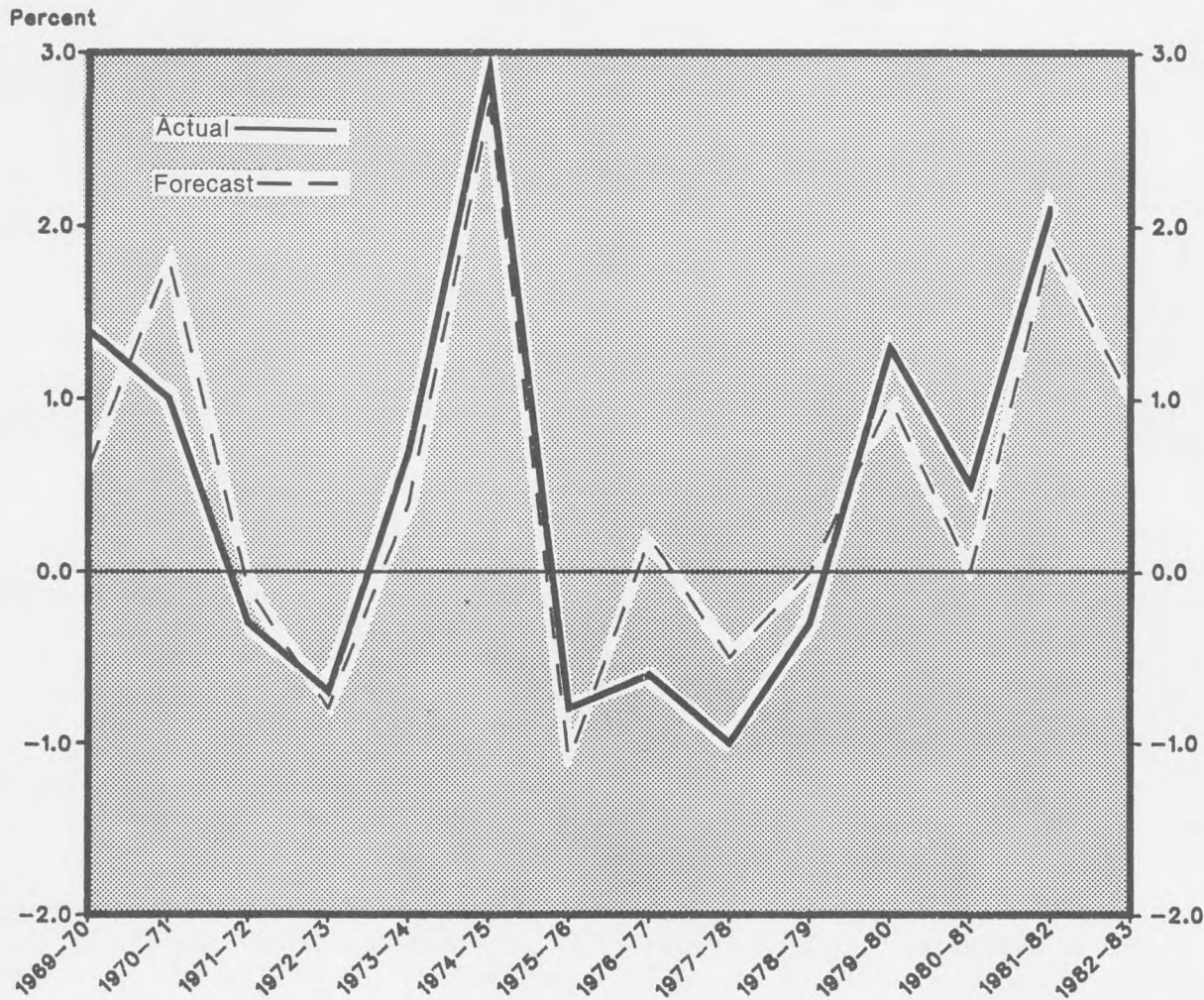
[In percentage points]

Time of forecast and group represented	Forecast horizon (number of quarters)			
	1	2	3	4
Early quarter:				
ASA-NBER	0.2	0.4	0.4	0.4
Six forecasters . . . . .	.2	.4	.4	.4
Mid-quarter:				
Five forecasters . . . . .	.2	.4	.5	.5
Late quarter:				
Three forecasters . . . . .	.1	.3	.4	.4

NOTE: The early quarter forecasts are those based on preliminary estimates of the last quarter's GNP; mid-quarter forecasts are based on the first GNP revision; and late-quarter forecasts are those made near the end of the quarter. Entries for the American Statistical Association-National Bureau of Economic Research (ASA-NBER) are errors in the median forecasts of about 40 forecasters, while the other entries are median errors.

SOURCE: Stephen K. McNees, "The Recent Record of Thirteen Forecasters," *New England Economic Review*, September-October 1981, pp. 5-21.

Chart 1. Year-to-year percentage-point change in the unemployment rate, actual and as forecast using the leading employment index, 1969-83



NOTE: Forecasts are based on the 6-month smoothed growth rate in the leading employment index for November of the preceding year.

SOURCE: Center for International Business Cycle Research, Rutgers University, Newark, N.J.

FOOTNOTE

ACKNOWLEDGMENT: The author would like to thank Richard Conger, Theodore Joyce, Chantal Dubrin, Joyce Geiger, and Philip Goodman of the Center for International Business Cycle Research staff for their participation in the work underlying this report.

¹ The index used for the purpose of forecasting unemployment is a variant of the one regularly published by the Center for International Business Cycle Research. The published index includes a target trend adjustment to make its long-run growth trend consistent with that of

the U.S. Department of Commerce leading index, namely 3.3 percent per year. The index used here has virtually no long-run trend. It leads the unemployment rate on average by 4 months at unemployment peaks and by 6 months at unemployment troughs for the years 1948 to 1982. For a discussion of both indexes and their uses, see Geoffrey H. Moore, "A new leading index of employment," *Monthly Labor Review*, June 1981, pp. 44-47. Since that report was written, an additional component—the layoff rate for all workers—has been included in both indexes.

Industry diffusion indexes for average weekly hours

RICHARD ESPOSITO AND KENNETH SHIPP

The Bureau of Labor Statistics has developed diffusion indexes of average weekly hours of production workers on private nonagricultural payrolls. The indexes cover both nonmanufacturing and manufacturing industries at more detailed industry levels than the 20-industry indexes produced currently by the Department of Commerce.

The new indexes measure the dispersion of increase in hours. The Average Weekly Hours Diffusion Index indicates the percentage of industries which had gains in their monthly average weekly hours series. For example, a diffusion index of 25.0 means that 25 percent of the industries covered by the index had increased average weekly hours for the month.

The indexes were computed for time spans of 1, 3, 6, 9, and 12 months. Each is centered on the midpoint of the span, or as close to it as possible. Thus, a 3-month diffusion index measures the percentage of industries with hours rising based on the middle month. A 6-month index is centered on the third month. One-month indexes measure the gain in hours from the previous to the current month. (See table 1, pp. 34-35.) Data for average weekly hours are based on the week including the 12th day of the month. Each index was computed using the following algorithm:

$$\frac{A + B/2}{A + B + C} * 100,$$

where:

- A = The number of industries which have an increase in their average weekly hours for the specified period;
- B = The number of industries which have no changes in their average weekly hours for the specified period; and
- C = The number of industries which have declining average weekly hours for the specified period.

For the 1-, 3-, 6-, and 9-month span indexes, the average weekly hours data have been seasonally adjusted before computation of the index. Average weekly hours

are calculated to tenths of an hour; thus, a change from 40.0 to 40.1 hours is an increase. Of the industries with no change in their average weekly hours, half are considered to have risen and half to have fallen. The 12-month span index uses unadjusted data.

The Bureau has expanded the number of industries covered by the current diffusion index, so as to include nonmanufacturing industries, as well as changing to a more detailed unit within manufacturing. The current index produced by the Commerce Department has 2-digit Standard Industrial Classification (SIC) industries in manufacturing only. The new detail includes all 3-digit SIC categories in the manufacturing sector and 2-digit SIC categories in the nonmanufacturing sector.

The result of the expansion is the use of 186 industries to compute the indexes. Forty-nine of these industries are in the nonmanufacturing sector and the remaining 137 industries are in the manufacturing sector. The diffusion indexes, which contain both manufacturing and nonmanufacturing, are still heavily weighted toward the former.

Historical diffusion indexes, particularly those prior to 1972, reflect the industry detail available, and therefore cover fewer industries, as shown in the following tabulation:

Period	Industries	
	Manufacturing	Nonmanufacturing
Feb. 1958 to Dec. 1963	90	14
Jan. 1964 to Dec. 1971	91	17
Jan. 1972 to present	137	49

There is some overlap for the different indexes, due to the time lag necessary to produce an index. No attempt was made to produce an index prior to 1958 because of the lack of data.

Clear cyclical patterns can be discerned for the 3-, 6-, 9-, and 12-month indexes. Turning points in the diffusion indexes were tentatively determined using methods developed by Bry and Boschan¹. Table 2 on page 36 compares these turning points with peaks and troughs designated by the National Bureau of Economic Research (NBER).

The data in table 2 suggest that the Average Weekly Hours Diffusion Index is an indicator which precedes, or leads, the NBER reference dates. However, in the period since 1958, many additional peaks and troughs were also identified. These extra cycles make analysis of the Average Weekly Hours Diffusion Index somewhat ambiguous. We suggest that several other economic phenomena be observed in conjunction with the index's cyclical movements when predicting economic movement.

To determine industry bias, diffusion indexes were

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Table 2. Diffusion index peaks and troughs and those of the business cycle¹

Diffusion index peaks					NBER ¹ reference peaks
1 month	3 months	6 months	9 months	12 months	
—	—	—	—	—	Aug. 1957
Sept. 1958	Oct. 1958	Nov. 1958	—	—	Apr. 1960
June 1961	Oct. 1961	Aug. 1961	—	—	—
May 1965	Jan. 1966	Nov. 1965	May 1961	Nov. 1961	—
Feb. 1968	June 1968	July 1968	Oct. 1965	Oct. 1965	—
Nov. 1971	Dec. 1971	Jan. 1972	Sept. 1968	Dec. 1967	Dec. 1969
Aug. 1975	Dec. 1975	Oct. 1975	Dec. 1971	Oct. 1971	Nov. 1973
Mar. 1978	Mar. 1977	Apr. 1977	Oct. 1975	Aug. 1975	—
—	Dec. 1980	Oct. 1980	June 1977	Mar. 1977	Jan. 1980
—	—	Apr. 1982	Jan. 1981	Jan. 1981	July 1981
—	—	—	—	—	—
Diffusion index troughs					NBER ¹ reference troughs
1 month	3 months	6 months	9 months	12 months	
—	—	—	—	—	Apr. 1958
Dec. 1960	Nov. 1960	Sept. 1960	Aug. 1960	June 1960	Feb. 1961
Oct. 1962	Nov. 1962	July 1962	Sept. 1962	Oct. 1962	—
Feb. 1967	Jan. 1967	Nov. 1966	Jan. 1967	Nov. 1966	—
Sept. 1970	Apr. 1970	Mar. 1970	Feb. 1970	Mar. 1970	Nov. 1970
Feb. 1975	Oct. 1974	Nov. 1974	Oct. 1974	Aug. 1974	Mar. 1975
June 1976	July 1976	Aug. 1976	June 1976	July 1976	—
—	Apr. 1980	Mar. 1980	Feb. 1980	Dec. 1979	July 1980
Jan. 1982	Dec. 1981	Oct. 1981	Sept. 1981	July 1981	—

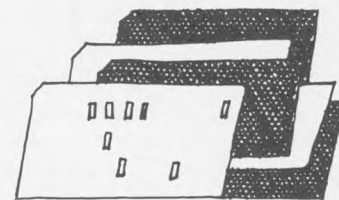
¹ Designated by the National Bureau of Economic Research.

computed, as a test, for both manufacturing and nonmanufacturing sectors using the same procedures described earlier. The nonmanufacturing index indicates less volatile changes than that of manufacturing. This is particularly true in the 9- and 12-month spans where trend curves and cyclical movement are more easily identified. Although we did not pursue this further, the new indexes will be somewhat affected by the subdued behavior of the nonmanufacturing industries.

We hope that these indexes will be useful to the economist who attempts to forecast future economic activity. Perhaps they will provide a stronger analytical framework for developing business, labor, and government policies. □

FOOTNOTE

¹ Gerhard Bry and Charlotte Boschan, *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs*, National Bureau of Economic Research, 1971, Columbia University Press, New York and London.



The origins and operations of area labor-management committees

RICHARD D. LEONE AND MICHAEL F. ELEEY

Labor-management cooperation is not a new development. Throughout the twentieth century, and especially during wartime or when specific industries experienced crisis, labor and management have, on occasion, set up joint committees to address issues not readily resolved through traditional collective bargaining mechanisms.¹ Never viewed as substitutes for the bargaining process, but rather as complementary to it, these committees attempted to resolve problems confronting particular plants or industries in a nonadversarial manner.

Area labor-management committees, most of which emerged in the 1970's, have a somewhat different focus. They bring together the chief spokespersons of local labor unions and business organizations in an effort to resolve problems affecting the economic well-being of an entire community, rather than a particular worksite or industry. Their focus is usually on job retention and creation. This report reviews the highlights of some recent research on four main aspects of area labor-management committees: (1) where and why area committees have been formed, (2) how they are developed and sustained, (3) how they are structured and what programs they have carried out, and (4) what role the Federal Government has played in the process.²

Born of hard times

Most of the area labor-management committees established to date are found in the Northeast and Midwest. (See exhibit 1.) Although the communities in which they have developed vary in size, political structure, and industrial mix, they are all places in which unemployment is high, companies and unions are perceived as having poor labor-management relations, the population and the labor force are declining, there is a high

degree of unionization, and the local economic base is deteriorating. Obviously these interrelated problems do not arise overnight, but rather grow out of corporate and union decisions rooted in the past. Nevertheless, it is usually an immediate crisis, such as a plant closing or a prolonged labor dispute, which finally impels local leaders to take action.

The Jamestown, N.Y., experience was typical of how and why area labor-management committees were formed.³ In the early 1950's, Jamestown began to lose jobs in manufacturing. The decline accelerated in the 1960's when the wood furniture industry, the basis of Jamestown's manufacturing employment, moved South. In 1971, nearly 1,000 workers were affected by employer bankruptcies and plant closings. An additional 2,800 jobs were threatened, and unemployment was already at 10 percent, almost twice the national average. The city's population and labor force were declining, many young educated people were leaving the area, and attempts to attract new businesses were failing.

These converging forces prompted five prominent individuals to begin the search for a solution. The local federal mediator, a local labor lawyer, and an official of the Jamestown Manufacturers' Association began to meet informally. After several discussions, they approached Mayor Stanley Lundine and discovered that he and the city ombudsman, a former labor leader, had also begun to explore how the loss of jobs might be stemmed. All five agreed that poor labor-management relations were at the heart of the problem.

The mayor took the lead. At first, he met with leaders of local businesses and labor unions separately, having been advised by the others not to bring them together in the same room. Subsequently, he called the labor and business leaders together, in sessions which were unavoidably acrimonious. Over the course of a series of dinners and luncheons, however, the barriers between the parties gradually disintegrated. Once both sides realized they had mutual interests, a spirit of trust began to emerge. As a result of candid dialogue with each other and some fresh ideas and perspectives suggested by outside speakers, the two sides decided to adopt a joint committee structure, in order to maintain the new spirit of cooperation and to begin addressing issues which affected the community as a whole.

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Not only was the Jamestown experience typical of the development of most area committees, but through a combination of support from the Federal Government, coverage by the national press, and its own geographic centrality (in the Northeast-Midwest quadrant of the United States), the Jamestown committee became a model which could be studied by other communities with similar problems. As a result, many of its structural features and programs were adopted in other localities.⁴

Problems with representation and funding

Prior to the 1970's, when most of the current areawide committees were established, many U.S. communities had experimented, at one time or another, with labor-management cooperation on an areawide level, largely in an attempt to minimize strikes. But these efforts usually failed because they were dominated by either labor or management, and because the communities lacked funding to hire a staff and maintain programs. These two hazards continue to pose a threat to the existence of area committees, even today.

To maintain a sense of balance, area labor-management committees consist of an equal number of representatives from labor and business, with each group selecting a spokesperson to serve as cochairperson. The representatives from both sides must feel that the actions taken by the committee are to their mutual benefit, and because they do not usually have a formal mandate from their respective union and management organizations, they must be certain that decisions reached by the committee will be viewed favorably by their constituents.

Most area labor-management committees publish statements of their goals, which tend to focus on labor-management relations in the community, human resources development and training, local economic development, and increased productivity. But inasmuch as the members serve voluntarily and have other commitments, area committees cannot pursue these goals with concrete programs unless they can secure and maintain a staff. Thus, to a large extent, a committee's history reflects its ongoing search for funds. Again, the Jamestown experience is significant, and typifies the funding and organizational patterns of most other committees, at least since the mid-1970's.

Although the city of Jamestown provided the seed money in early 1973, a grant from the Economic Development Administration marked the first time that Federal dollars were awarded to support an area committee. These funds enabled the Jamestown committee to hire a full-time executive director, and in the process, signalled the institutionalization of the areawide committee concept. From 1973 to 1982, the Jamestown committee received \$1.1 million from various sources, with the city providing slightly more than one-fourth of these funds.

Exhibit 1. Area labor-management committees in the United States

Year established	Location	Population ¹
1945	Toledo, Ohio	354,635
1946	Louisville, Kentucky	298,451
1953	Chattanooga, Tennessee	169,565
1958	Jackson, Michigan	39,734
1963	South Bend, Indiana	109,727
1965	Green Bay, Wisconsin	78,899
1970	Appleton, Wisconsin Marquette, Michigan	59,032 23,289
1972	Jamestown, New York Pittsburgh, Pennsylvania	35,775 424,205
1975	Buffalo, New York Cumberland, Maryland Dunkirk-Fredonia, New York Evansville, Indiana Lock Haven, Pennsylvania Youngstown, Ohio	357,870 25,933 26,636 130,496 9,617 115,436
1976	Elmira, New York Springfield, Ohio	35,327 72,563
1977	Muskegon, Michigan Riverside-San Bernardino, California St. Louis, Missouri Stevens Point, Wisconsin	40,823 288,933 453,085 22,970
1979	Beaumont, Texas Duluth, Minnesota Paducah, Kentucky Portsmouth, Ohio Scranton-Avoca, Pennsylvania Sioux City, Iowa	118,102 92,811 29,315 25,943 87,378 82,003
1980	Philadelphia, Pennsylvania	1,688,210
1982	Kankakee, Illinois Lansing, Michigan	30,141 130,414

¹ SOURCE: 1980 Census.

Most area committees, however, do not receive this level of local government support. On average, they have received about 18 percent of their funds from city and county governments.

The bulk of funds for area committees have come from three Federal agencies: the Economic Development Administration, the Appalachian Regional Commission, and the Department of Labor, under provisions of the Comprehensive Employment and Training Act. Promoting labor-management cooperation was not part of the explicit mission of any of these three agencies, but their award of funds to area committees was justified on the grounds that the committees would increase productivity, promote job retention and creation, and be active in manpower training—all of which were high priorities of the agencies. The three agencies, however, gradually withdrew their support. Today, the only source of Federal funding is the Federal Mediation and Conciliation Service, acting pursuant to the Labor-Management Cooperation Act of 1978.

As a result of continuing budget pressures, area labor-management committees have been compelled to devote, on average, between 30 and 40 percent of their

efforts to fund-raising—a burden which is not likely to decrease in the absence of a broader government funding program. Historically, area committees have not been able to develop other major sources of income. Despite extensive efforts, they have only been able to generate about 11 percent of their total funds from non-governmental sources, such as dues from member organizations, private grants, and fees from workshops and seminars. Funding interruptions and discontinuations tend to take a toll on any organization, and in the absence of more stable financing, the true effectiveness of an area committee cannot be fully ascertained.

Structure and programs

Committee membership divides roughly into two groups. The core group consists of those leaders who were involved in establishing the committee. It includes the labor and management cochairpersons, the committee's executive director, and perhaps one or two additional key individuals. All other members constitute what might be termed the support group, who are somewhat less actively involved in the operation of the committee. Support group members usually attend meetings and are present for most public events sponsored by the committee. A moderate degree of turnover among the committee's support group appears to help maintain a flow of new ideas and perspectives. Turnover among the core group, however, is quite a different matter. Frequent or sudden changes among top committee leaders have usually caused serious problems for the organization as a whole.

The individual qualities of its key personnel are central to the success of an area committee. To maintain its effectiveness, a committee must attract members from the top echelon of local business and labor leaders. The leadership capabilities of its two cochairpersons have a vital impact on the committee's ability to develop a consensus regarding its programs and policies and on its ability to interact effectively with other power centers within the community. The executive director's role requires communications skills and administrative ability; furthermore, it demands an individual who is perceived as neutral in labor-management issues and has a solid reputation in the local labor relations community.

How often a committee meets is not as important as the way in which it reaches its decisions. The process adopted by most area committees can be characterized as group consensus. Full agreement from both sides is a necessary requirement of decisionmaking, and most committees take very few, if any, formal votes.

Committees generally agree to move toward their goals by supporting activities in one or more of four broad program areas. First, they sponsor events such as dinners, conferences, and seminars which are not only educational in nature, but which also improve communication between labor and management. Second, they

promote labor-management committees to increase productivity and enhance the quality of worklife at local worksites. Third, they occasionally serve as informal mediators in labor disputes. And, fourth, they involve themselves, directly or indirectly, in local economic development.

Improved communications. As noted previously, dinners and luncheons serve to reduce tension and promote trust between the parties in the early stages of a committee's formation. Once the committees have become established, they continue to sponsor such events throughout their existence. Many of these social events are also open to nonmembers, especially other union and management leaders.

Many committees have also hosted annual conferences on such topics as employee participation and quality of worklife. These conferences serve several functions. First, they provide a forum where exponents of labor-management cooperation can exchange ideas with one another and with those unfamiliar with the concept. Second, these conferences communicate—not only to the people in the community where they are held, but also to the broader, national public—the fact that the leadership in the local area believes cooperation through participation in an area labor-management committee can coexist with collective bargaining.

In addition, committees support workshops and seminars on topics such as job sharing, employee ownership, problem solving, productivity, worksite committees, grievance administration, economic development, and labor relations in general. These workshops are usually designed to attract local foremen, shop stewards, managers, and employees, who are able to bring back to their home bases new ideas and approaches to worklife issues and problems.

Those who attend these dinners, conferences, and seminars attest to their efficacy in promoting trust, understanding, and mutual respect. There is ample evidence in the communities we studied that few, if any, of these events would have taken place had the area committee not existed.

Worksite committees. Employee participation at the plant or worksite has recently come to be subsumed under the rubric, "quality of worklife," or QWL. In the early 1970's, QWL programs began to gain acceptance in nonunion settings and in several large unionized companies, quite independently of the area-committee movement. In 1973, Eric Trist, a leader in the development of employee participation programs in Europe and the United States, became a consultant to the Jamestown Committee. He recommended that as part of its overall program the committee support the development of employee participation, in the form of labor-management committees at local worksites.

Through these worksite committees, employees receive detailed management information about plant operations, and at the same time share their own knowledge with supervisory personnel. The committees consider such issues as skills development, plant layout, productivity, gain-sharing, job redesign, health and safety, retention of workers in a layoff situation, and work rules not covered in a collective bargaining agreement. Because these problems can develop rapidly, committees tend to meet on a frequent schedule.

Many of the businesses located in the communities are of small or medium size. Unlike larger companies, they do not have specialized staff to implement a worksite committee program, nor can they afford to hire outside consultants, as many large firms have been compelled to do. The basic role of an area committee *vis-à-vis* worksite committees, therefore, has been to provide this technical assistance. In fulfilling this role, many committees have had substantial impact in their communities. The vast majority of worksite committees in the communities we studied would *not* have been established without the area committee's interest and support.

There are two basic policies that area committees follow in their relationships with worksite committees. At some area committees, a staff member remains permanently associated with the worksite committee. The advantages of this are that (1) technical expertise is continuously available to the committee, and (2) the continuing presence of a third party helps to maintain the group's focus on essential issues and prevent irrelevant ones from burdening or destroying the problem-solving process. Other area committees require their staff to withdraw from active participation in the worksite committee some 6 to 9 months after it has been established, although some informal contact is usually maintained. The justification given for this approach is that, with limited area committee resources, it increases the number of worksite committees that can be established.

In sum, an area labor-management committee can promote the local development of worksite committees in several ways. It can act as a resource center, providing information and hands-on assistance in quality-of-worklife techniques and labor-management cooperation. It can serve as the hub of a network through which local unions and companies can share ideas and experiences. And an area committee can provide those interested in QWL with the opportunity to explore with their peers the pros and cons of forming a worksite committee, without needing to commit themselves prematurely.

Facilitating collective bargaining. An issue which arises early in the development of an area labor-management committee is how it will deal with problems involving

collective bargaining relationships or the administration of labor contracts. While committee participants acknowledge that collective bargaining's limitations have contributed to some of the community's problems, they also realize that labor and management view the bargaining process as their private forum. Thus, committees usually make a formal declaration that none of their programs will disturb the delicate balance of relationships established over time through collective bargaining, nor otherwise affect the terms of any collective bargaining agreements.⁵

At first glance, this public position may seem extreme, especially because in most communities where committees have been formed, long or bitter strikes have contributed to a poor labor-relations climate. But because of the sanctity of bargaining, this official stance is a prerequisite for encouraging committee participation. In practice, however, many committee programs do touch on collective bargaining relationships, though they fall short of intervening in the bargaining process itself.

Consistent with the general goal of "improving the labor-management climate," executive directors and members of area committees have often been called upon by the principal parties to serve as mediators in contract negotiations or other labor disputes. Most executive directors have had previous experience in mediation. Over time, they become familiar with the bargaining relationships in the local area and gain respect as a neutral party. In addition to the executive director, members of the committee itself may facilitate the bargaining process. In some cases, members have served as personal messengers or go-betweens, transmitting to the parties the relative positions taken by the other side. Committees have also been called upon to study the positions of the parties and make impartial recommendations. In other cases, they have recommended that the Federal Mediation and Conciliation Service assume responsibility. In the final analysis, whatever mediation role an area committee selects, its participation must be very informal and conducted with the utmost discretion.

Supporting local economic development. Local economic development activities are aimed at encouraging existing employers to maintain or expand their operations in the area, and at persuading other firms to move into the area. To the degree that worksite committees and an area committee's mediation roles may diffuse hostility in labor-management relations, employers that otherwise would move will be encouraged to remain in the area. But encouraging new firms to locate in the area requires a more active posture on the part of an area committee.

Most localities have one or more agencies designated to promote economic development. Almost all area

committees have among their members a representative from the local economic development community. This liaison keeps local leaders informed about efforts at improving the local economy, brings a broader spectrum of perspectives to the development process, and communicates a sense of community cohesion. Local economic development efforts are often politicized, fragmented, and counterproductive because of jurisdictional struggles. Among other things, area committees have helped to bridge these gulfs which sometimes separate competing local agencies.

Numerous factors influence a company's decision to locate in one place versus another, and in many cases the labor relations climate is an important consideration. The fact that labor and management are interacting within the context of an area committee projects a more positive image for the local community. Furthermore, the cochairpersons and the executive director of a committee can communicate directly with potential employers, and in some cases these individuals have been very effective in making the case for the broad range of potential benefits associated with locating in the area.

The role of the Federal Government

In 1976, Congressman Stanley Lundine, former mayor of Jamestown and a leading proponent of labor-management cooperation, introduced the Human Resource Development Act, which contained provisions advocating Federal support for labor-management cooperation. But because much of the rest of the act was similar to the Humphrey-Hawkins Full Employment Act, Lundine's proposal was not reported out of committee. In 1977, he introduced a second version of the Human Resource Development Act, and, in 1978, the labor-management cooperation provisions of the bill were added as a rider to the Comprehensive Employment and Training Act. The stated objectives of this self-contained legislation, the Labor-Management Cooperation Act of 1978, reflected many of the principles and practices of area committees, such as improving communications and working relationships between labor and management, providing workers and employers with opportunities to explore joint approaches to problems not amenable to resolution by collective bargaining, and developing ways of increasing productivity and promoting economic development. Furthermore, the act provided for Federal assistance in the formation of labor-management committees at the worksite, industry, and areawide levels.⁶

The Federal Mediation and Conciliation Service was charged with implementing the provisions of the Labor-Management Cooperation Act of 1978. Although the act authorized funding levels for 1979 and 1980, appropriations were not approved until the spring of 1981,

and then only after extensive lobbying efforts. The regulations subsequently adopted by the Federal Mediation and Conciliation Service concerning areawide committees provided that grants to existing committees could be for up to 2 years, and grants to new ones could be for 3. To date, the Federal Mediation and Conciliation Service has funded seven committees which were already in operation, and an equal number of new ones. Other than these, no new committees have been formed. Meanwhile, as noted earlier, the three traditional sources of Federal funds—the Economic Development Agency, the Appalachian Regional Commission, and the Department of Labor—have all terminated their financial support.

It is as yet too soon to determine if the committees receiving funds under the Labor-Management Cooperation Act will become self-sufficient, as the Federal Mediation and Conciliation Service regulations assume they should. There is strong evidence, however, that without further Federal financing, new committees will not be established and, as they seek alternative funding, those already operating will risk jeopardizing their independence and flexibility—two essential elements of the area labor-management committee concept. □

—FOOTNOTES—

¹ See Selig Perlman and Philip Taft, *History of Labor in the United States* (New York, Macmillan, 1935); Dorothea de Schweinitz, *Labor and Management in a Common Enterprise* (Cambridge, Mass., Harvard University Press, 1949); and William Gomberg, "Special Study Committees," in John T. Dunlop and Neil W. Chamberlain, eds., *Frontiers of Collective Bargaining* (New York, Harper and Row, 1967).

² This article is based largely on the findings of a national study of area labor-management committees conducted in 1980–1982 by the Center for Labor and Human Resource Studies, Temple University, under contract from the U.S. Department of Labor. The purpose of the project was to assess the origins, structure, and function of these unique institutional forms. The study used a comparative case method and focused on eight representative sites: Buffalo and Jamestown, N.Y.; Scranton, Pittsburgh, and Clinton County, Pa; Cumberland, Md.; Paducah, Ky.; and Evansville, Ind. More than 100 area committee participants and staff members were interviewed at length, and numerous other individuals and agencies were contacted. For the detailed findings, see Richard D. Leone, Michael F. Eeley, David W. Watkins, and Joel E. Gershenfeld, *Operation of Area Labor-Management Committees* (Washington, U.S. Department of Labor, Labor-Management Services Administration, 1982).

³ See Charlene Gorda Costanzo and Joel E. Gershenfeld, *A Decade of Change: The Ten Year Report of the Jamestown Area Labor-Management Committee* (Jamestown, N.Y., Jamestown Areawide Labor-Management Committee, 1982).

⁴ Presently there are over 30 area labor-management committees in the United States, all but nine of which were established after Jamestown's. For a comprehensive listing, see *Resource Guide to Labor-Management Cooperation* (Washington, U.S. Department of Labor, Labor-Management Services Administration, 1982), pp. 190–2.

⁵ The Toledo, Ohio, area labor-management committee is an exception to this pattern of official non-involvement in collective bargaining. Since its inception in 1945, the Toledo committee has served as the city's official mediation agency.

⁶ *Federal Register* (General Services Administration), Dec. 11, 1981, p. 60645.

Number of occupational deaths remained essentially unchanged in 1981

JANET MACON

Bureau of Labor Statistics survey results show that the number of work-related deaths in private-sector establishments employing 11 or more workers, was 4,370 in 1981, compared with 4,400 in 1980 (table 1).¹ The corresponding fatality rate was essentially the same—7.6 per 100,000 full-time workers in 1981 and 7.7 in 1980. (Overall the number of employees on the job and the hours they worked changed only slightly between 1980 and 1981.)

Employers participating in the Annual Survey of Occupational Injuries and Illnesses were asked to supply specific information about all deaths caused by hazards in the work environment, that is, the object or event most closely associated with the circumstances of the fatality. Estimates of the percentage of fatalities by cause represent the 2-year average for the 1980 and 1981 surveys. Percentages were calculated for the 2 years combined rather than for each year separately as large sampling errors at the industry division level preclude precise comparisons based on year-to-year changes.

The 4,370 fatalities represent all deaths reported resulting from a job-related injury or illness in 1981, regardless of the length of time between the injury and death or the length of illness resulting in death. Of these, about 460 were related to illness.

The percentage of fatalities in wholesale and retail trade increased from 13 percent of the total in 1980 to 17 percent in 1981. The construction industry accounted for 18 percent of fatalities, which continued to be more than three times the industry's share of employment (5 percent), and the mining industry had 11 percent of the fatalities—about six times its share of employment (2 percent). Manufacturing continued to have the largest number of fatalities among the industry divisions, but the percentage of the total dropped from 25 in 1980 to 23 in 1981.

Analysis by cause

Four major causes of death were over-the-road motor vehicles, falls, heart attacks, and industrial vehicles or equipment, accounting for more than 60 percent of all cases (table 2).

Accidents with over-the-road motor vehicles caused about 30 percent of the deaths, about one-third occurring in transportation and public utilities industries, which had only 7 percent of total employment (table 3).

Falls contributed to about 11 percent of the deaths. About half occurred in the construction industry, which had only 5 percent of total employment.

Heart attacks, which were about 11 percent of the total, occurred at a slightly higher frequency in the construction and transportation and public utilities industries when compared with employment percentages.

Accidents involving industrial vehicles or equipment caused about 10 percent of the fatal cases; nearly one-third occurred in construction. About one-sixth of these fatalities occurred in the oil and gas extraction industry, which is unusually high, because this industry had less than 1 percent of total employment.

About 6 percent of the deaths were by electrocutions; nearly one-third occurred in construction. About three-fifths of the gunshot fatalities took place in wholesale and retail trade, an industry with 24 percent of total private-sector employment. One-fifth of the deaths from aircraft crashes were in the oil and gas extraction sector of the mining industry.

Manufacturing, which had 31 percent of employment, incurred 56 percent of total deaths caused by fire, 83 percent of deaths caused by plant machinery operation, 46 percent of deaths caused by explosions, and 57 percent of deaths caused by gas inhalation.

Analysis by industry

Agriculture, forestry, and fishing. Nearly half of all deaths in this industry were caused by over-the-road motor vehicles (23 percent) and industrial types of vehicles or equipment (25 percent). Heart attacks were the cause of death in 14 percent of the cases and electrocutions in 12 percent.

Mining—oil and gas extraction only. Accidents with over-the-road motor vehicles and equipment combined accounted for nearly 3 of every 5 deaths in this segment of the mining industry. Falls and aircraft crashes each contributed 9 percent of the fatalities.

Construction. As in previous years, falls were the major cause of death in the construction industry, accounting for 29 percent of all cases. Accidents involving over-the-road motor vehicles caused 15 percent of all fatalities and industrial vehicles or equipment caused 16 percent. Ten percent of all cases were due to electrocution.

Manufacturing. Accidents attributable to over-the-road motor vehicles were the major cause of death in this industry accounting for 1 of every 5 cases. Heart attacks, industrial vehicles or equipment, falls, and plant machinery operations accounted for 40 percent of all cases.

Transportation and public utilities. Over half of all cases were attributable to accidents involving over-the-road

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Table 1. Occupational injury and illness fatalities and employment for employers with 11 employees or more by industry, 1980 and 1981

Industry division	Annual average employment ¹				Fatalities			
	1980		1981		1980		1981	
	Number (thousands)	Percent	Number (thousands)	Percent	Number	Percent	Number	Percent
Private sector	62,263	100	62,981	100	4,400	100	4,370	100
Agriculture, forestry, and fishing	806	1	845	1	140	3	130	3
Mining	949	2	1,047	2	460	10	500	11
Construction	3,103	5	2,982	5	830	19	800	18
Manufacturing	19,616	32	19,507	31	1,080	25	990	23
Transportation and public utilities	4,667	7	4,677	7	810	18	750	17
Wholesale and retail trade	15,293	24	15,475	24	580	13	730	17
Finance, insurance, and real estate	4,071	7	4,183	7	150	3	120	3
Services	13,758	22	14,265	23	350	8	350	8

¹ Annual average employment for nonagricultural industries is based on the employment and earnings survey conducted by BLS, in cooperation with State agencies. The employment estimate for the services division is adjusted to exclude the nonfarm portion of agricultural services and nonclassifiable establishments. Employment estimates have been adjusted based on County Business Patterns to exclude establishments with fewer than 11 employees. Annual average employment for the agriculture, forestry, and fishing division is a com-

posite of data from State unemployment insurance programs and an average quarterly estimate of hired farmworkers engaged in agricultural production from the Department of Agriculture. The estimate is adjusted to exclude employment on farms with fewer than 11 employees.

NOTE: Because of rounding, components may not add to totals.

motor vehicles. Heart attacks and electrocutions contributed 9 percent each.

Wholesale and retail trade. The major cause of death in this industry was accidents involving over-the-road motor vehicles (33 percent). Gunshot injuries (mainly as a result of robberies) and heart attacks each contributed 16 percent of the fatalities.

Finance, insurance, and real estate. Nearly three of every 4 cases in this industry involved either over-the-road motor vehicle accidents (49 percent) or heart attacks (24 percent).

Services. Accidents involving over-the-road motor vehicles were the cause of 37 percent of all fatalities in this industry and heart attacks were the cause of 15 percent. Twelve percent of all cases were caused by objects or events not specified in the table. These come under "all other" causes and include, for example, contact with toxic substances, drowning, and freezing or extreme cold.

Background of survey

The Annual Survey of Occupational Injuries and Illnesses is a Federal and State program in which reports are received and processed by State agencies par-

Table 2. Distribution by industry division: causes of fatalities resulting from occupational injury and illness in units with 11 employees or more, private sector, 1980 and 1981¹

[In percent]

Cause ²	Total ³	Agriculture, forestry, and fishing	Mining—oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Total	100	100	100	100	100	100	100	100	100
Over-the-road motor vehicles	30	23	29	15	21	55	33	49	37
Falls	11	5	9	29	10	5	4	3	9
Heart attacks	11	14	4	7	10	9	16	24	15
Industrial vehicles or equipment	10	25	29	16	10	4	2	(⁵)	8
Struck by objects other than vehicles or equipment	7	1	5	8	8	3	12	0	1
Electrocutions	6	12	6	10	6	9	2	0	3
Gunshots	4	4	0	(⁵)	2	2	16	(⁵)	5
Aircraft crashes	3	4	9	2	2	3	1	5	4
Caught in, under, or between objects other than vehicles or equipment	3	1	1	4	3	(⁵)	6	16	1
Fires	3	3	3	1	6	3	1	2	2
Plant machinery operations	3	1	(⁵)	(⁵)	10	(⁵)	1	0	1
Explosions	2	1	1	3	4	2	1	0	(⁵)
Gas inhalations	2	1	(⁵)	1	4	1	1	0	1
All other	4	5	4	3	4	4	3	(⁵)	12

¹ It is impossible to estimate year-to-year changes precisely because at the industry division level sampling errors are large. Therefore, the results are for both years rather than a comparison between them.

² Cause is defined as the object or event associated with the fatality.

³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.

⁴ Excludes railroads.

⁵ Less than 1 percent.

NOTE: Because of rounding, percentages may not add to 100.

Table 3. Distribution by cause: fatalities resulting from occupational injury and illness in units with 11 employees or more, private sector, by industry division, 1980 and 1981¹

[In percent]

Cause ²	Total ³	Agriculture, forestry, and fishing	Mining — oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Over-the-road motor vehicles	100	3	6	10	18	32	17	5	10
Falls	100	2	5	50	24	7	5	1	7
Heart attacks	100	5	2	13	25	14	23	7	11
Industrial vehicles or equipment	100	9	17	31	26	6	4	(⁵)	7
Struck by objects other than vehicles or equipment	100	1	5	24	33	8	28	0	1
Electrocutions	100	7	6	31	24	25	5	0	3
Gunshots	100	4	0	(⁵)	11	10	63	(⁵)	11
Aircraft crashes	100	5	20	11	23	20	6	5	11
Caught in, under, or between objects other than vehicles or equipment	100	2	2	24	24	4	26	15	4
Fires	100	4	6	6	56	14	6	2	5
Plant machinery operations	100	2	1	3	83	2	6	0	3
Explosions	100	2	2	27	46	15	7	0	2
Gas inhalation	100	3	1	15	57	10	10	0	4
All other	100	4	6	12	27	15	12	(⁵)	24

¹ It is impossible to estimate year-to-year changes precisely because at the industry division level sampling errors are large. Therefore, the results are for both years rather than a comparison between them.

² Cause is defined as the object or event associated with the fatality.

³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.

⁴ Excludes railroads.

⁵ Less than 1 percent.

NOTE: Because of rounding, percentages may not add to 100.

participating with BLS. The occupational fatality data reported are based on the records which employers maintain under the Occupational Safety and Health Act of 1970. Excluded from coverage under the act are working conditions which are covered by other Federal safety and health laws.

The survey covers units in private industries. Excluded are the self-employed; farmers with fewer than 11 employees; private households; and employees in Federal, State, and local government agencies. In a separate reporting system, agencies of the Federal Government are filing reports comparable with those of private industry with the Secretary of Labor.

The 1981 survey, to which response was mandatory, involved a sample of 220,000 units with 11 or more employees. Estimates based on a sample may differ from figures that would have been obtained had a complete

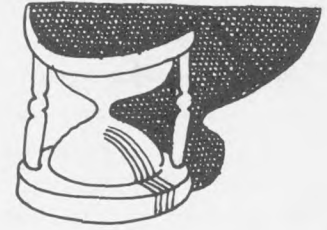
census of establishments been possible using the same schedules and procedures. Relative standard errors are calculated for the estimates generated from the Annual Survey of Occupational Injuries and Illnesses and are made available to the public. □

FOOTNOTE

¹ Since 1977, the fatality data have been published only for units with 11 employees or more because the reductions of the survey samples affected primarily employers with fewer than 11 employees. The reductions were in response to presidential directives on reducing the paperwork burden of employers selected to participate in statistical surveys. Data for occupational fatalities in coal, metal and nonmetal mining, and railroads were provided by the Mine Safety and Health Administration of the U.S. Department of Labor and by the Federal Railroad Administration of the U.S. Department of Transportation; however, data were not provided on the objects or events which resulted in on-the-job deaths for these industrial activities.

See "Occupational deaths declined in 1980, BLS survey finds," *Monthly Labor Review*, January 1982, pp. 49-52.

Major Agreements Expiring Next Month



This list of selected collective bargaining agreements expiring in June 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	Labor organization ¹	Number of workers
Acme Markets, Inc. (Pennsylvania)	Retail trade	Food and Commercial Workers	1,650
Affiliated Hospitals of San Francisco (California)	Hospitals	American Nurses Association	1,750
Allis-Chalmers Corp. (Pennsylvania)	Machinery	Machinists	1,000
Aluminum Co. of America (Interstate)	Primary metals	Auto Workers	1,300
Amax, Inc., United States Metals Refining Co. (New Jersey)	Primary metals	Steelworkers	1,400
AMF Harley-Davidson Motor Co., Inc. (Wisconsin)	Transportation equipment	Allied Industrial Workers	1,000
Associated General Contractors of America, Inc. California-Northern Chapters, 4 agreements	Construction	Laborers; Operating Engineers; Plasterers and Cement Masons; and Teamsters (Ind.)	24,800
Georgia Chapter (Atlanta, Ga.)	Construction	Laborers	1,600
Oklahoma Chapter	Construction	Operating Engineers	1,200
Rhode Island Chapter	Construction	Carpenters	1,500
San Diego Chapter (California)	Construction	Operating Engineers	3,500
Seattle and Tacoma Chapters (Washington)	Construction	Iron Workers	5,000
Southern California Chapters, 6 agreements (California)	Construction	Carpenters; Laborers; Operating Engineers; Plumbers; and Teamsters (Ind.)	79,000
Association of Steel Erectors and Heavy Equipment Operators, Inc. (Georgia)	Construction	Iron Workers	1,300
Avco Corp., Aerostructures Division (Nashville, Tenn.)	Transportation equipment	Machinists	2,100
Avco Corp., Lycoming Division (Williamsport, Pa.)	Transportation equipment	Auto Workers	1,150
Boise Cascade Corp. (Rumford, Me.)	Paper	Paperworkers	1,200
Carrier Corp., Elliott Co. Division (Pennsylvania)	Machinery	Steelworkers	1,100
Celanese Corp., 2 agreements (South Carolina and Virginia)	Chemicals	Clothing and Textile Workers	3,650
Central Hudson Gas and Electric Corp. (New York)	Utilities	Electrical Workers (IBEW)	1,000
Clark Equipment Co. (Michigan)	Transportation equipment	Auto Workers	1,000
Consolidated Edison Co. of New York, Inc. (New York, N.Y.)	Utilities	Utility Workers	16,700
Container Corp. of America (Interstate)	Paper	Paperworkers and Operating Engineers	2,500
Contracting Plasterers Association of Southern California, Inc. (California)	Construction	Plasterers and Cement Masons	2,000
CPC International, Inc., Corn Products (Interstate)	Food products	Oil, Chemical and Atomic Workers	1,800
Dan River, Inc., Danville Division (Virginia)	Textiles	Textile Workers	7,000
Foster Wheeler Energy Corp. (Dansville, N.Y.)	Fabricated metal products	Machinists	1,050
Georgia Power Co. (Georgia)	Utilities	Electrical Workers (IBEW)	5,450
Georgia-Pacific Corp., Crossett Division-Paper (Crossett, Ark.)	Paper	Paperworkers	1,350
Group Health Cooperative of Puget Sound (Seattle, Wash.)	Hospitals	American Nurses Association	1,200
Iron Worker Employers of California and Nevada (California and Nevada)	Construction	Iron Workers	5,500
J. I. Case Co. (Interstate)	Machinery	Auto Workers	7,600
Kennecott Copper Corp., Utah Copper Division, 2 agreements (Utah)	Primary metals	Steelworkers	2,400
League of New York Theatres, Inc. (New York)	Amusements	Actors	1,500
Magnavox Consumer Electronics Co. (Greenville, Tenn.)	Electrical products	Electrical Workers (IUE)	2,600
Master Lock Co. (Milwaukee, Wis.)	Fabricated metal products	Auto Workers	1,250
Maytag Co. (Iowa)	Electrical products	Auto Workers	1,950
Mechanical Contractors Association of Northern California, Inc. (California)	Construction	Plumbers	1,450
Manufacturers of Illumination Products, Inc. (Interstate)	Electrical products	Electrical Workers (IBEW)	1,150
Motor Wheel Corp. (Lansing, Mich.)	Transportation equipment	Allied Industrial Workers	2,500

See footnotes at end of table.

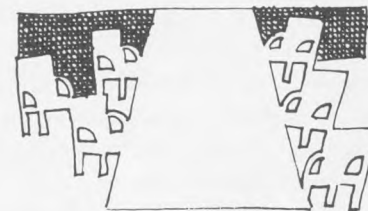
Continued—Major Agreements Expiring Next Month

Employer and location	Industry	Labor organization ¹	Number of workers
New York Electrical Contractors Association, Inc., and 2 others (New York)	Construction	Electrical Workers (IBEW)	9,600
New York State Electric and Gas Corp. (New York)	Utilities	Electrical Workers (IBEW)	2,900
Northern California Home Builders Conference, Master Agreement (California)	Construction	Carpenters	12,000
Pacific Coast Shipbuilding and Repair (Interstate) ²	Transportation equipment	Carpenters	1,700
Pacific Coast Shipbuilding and Repair (Interstate) ²	Transportation equipment	Metal Trades Council	35,000
Painting and Decorating Contractors Association Central Coast Counties, Inc. and 1 other (California)	Construction	Painters	2,000
Oregon Council and 2 Associations (Interstate) (San Francisco, Calif.)	Construction	Painters	1,200
Phelps Dodge Corp., Morenci Branch (Arizona)	Primary metals	Painters	1,700
Plumbing-Heating and Piping Industry Council (California)	Construction	Steelworkers	1,000
		Plumbers	9,000
Reliance Electric Co. (Ohio)	Electrical products	Electrical Workers (IUE)	1,200
Rush-Presbyterian-St. Lukes Medical Center (Chicago, Ill.)	Hospitals	Professional and Technical; Service Employees; and Teamsters (Ind.)	1,000
Seattle Area Hospital Council (Seattle, Wash.)	Hospitals	American Nurses Association	3,000
Sheet Metal Heating and Air Conditioning Contractors (California)	Construction	Sheet Metal Workers	1,100
South Central Employers Field Construction (Interstate) ²	Construction	Boilermakers	2,900
Southern California General Contractors (California) ²	Construction	Plasterers and Cement Masons	5,000
Tecumseh Products Co., Lauson Engine Division (Wisconsin)	Machinery	Machinists	2,000
Teledyne Continental Motors, General Products Division (Michigan)	Machinery	Auto Workers	1,100
Underground Contractors Association (Interstate)	Construction	Laborers	1,200
Union Electric Co., 2 agreements (Interstate)	Utilities	Electrical Workers (IBEW)	2,650
Union Electric Co. (Interstate)	Utilities	Operating Engineers	1,650
Wagner Castings Co. (Decatur, Ill.)	Primary metals	Allied Industrial Workers	1,200
Western Steel Council (California)	Fabricated metal products	Iron Workers	2,200
	Government activity		
Florida: Human Services, Professional, and Operational Services	Multidepartment	American Federation of State, County and Municipal Employees	42,550
Maryland: Baltimore County Board of Education, Professional Employees	Education	National Education Association	6,300
Michigan: Detroit Municipal Employees	Multidepartment	American Federation of State, County and Municipal Employees	8,000
Minnesota: Multidepartment	Multidepartment	American Federation of State, County and Municipal Employees	17,000

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

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

Developments in Industrial Relations



Steel accord gives employers cost relief

The problems of the steel industry's employers and employees were eased when the Coordinating Committee Steel Companies and the Steelworkers union negotiated a 41-month contract calling for labor cost cuts in return for improved job security and more aid for laid-off workers. Union vice president Joseph Odorcich said the settlement "sent a message to a lot of our detractors," referring to the criticism the union had drawn for turning down two earlier concessionary proposals the industry had made to help counter lagging sales attributed to the recession, increased foreign competition, and plant obsolescence. (See *Monthly Labor Review*, March 1983, p. 43.) The domestic steel industry lost \$3.3 billion in 1982.

Chief industry negotiator J. Bruce Johnston, a vice president of U.S. Steel Corp., praised the union's response to "their own and the industry's severe competitive disadvantage." He said that the accord will give the industry badly needed "interim relief" but is not "a permanent answer" to its problems.

The union's Basic Steel Industry Conference—a body of local union leaders which has the final decision on proposed settlements in the industry—approved the terms by a 169 to 63 vote. One apparent reason for the approval was that the local leaders viewed these concessions as less extensive than those proposed in November 1982. Also, most of the wage and benefits cuts will be restored prior to the contract's July 31, 1986, termination date. In fact, one industry official estimated that at the end of the contract the employers' labor costs will be 11 percent higher than the 1982 average of \$23.78 an hour, based on the automatic cost-of-living pay adjustments triggered by an estimated 7-percent annual rise in consumer prices.

The major union concession was a \$1.31 an hour pay cut that included elimination of a 6-cent cost-of-living allowance accumulated since November 1982 under provisions of the superseded 3-year agreement, which

had been scheduled to run through July 1983. (Cost-of-living adjustments totaled \$1.73 under the 1980 agreement, but \$1.67 was automatically incorporated into base pay rates, leaving 6 cents in the allowance at the time of the 1983 settlement.) For workers paid on an incentive basis, the pay reduction was somewhat more than \$1.31 because it included a 62.5-cent reduction in their incentive calculation rate and a 62.5-cent reduction in their "hourly additive." In any case, the cuts of \$1.25 will be restored: for employees paid on a straight hourly basis, 40 cents will be restored on February 1 of 1984 and 1985, and the remaining 45 cents on February 1, 1986; for incentive employees, 20 cents will be restored to both the incentive calculation rates and the hourly additive on February 1 of 1984 and 1985, followed by a 22.5-cent restoration to the additive and the incentive calculation rates on February 1, 1986.

In addition to giving up the 6-cent cost-of-living allowance, the employees will not receive the May 1983 cost-of-living adjustment scheduled under the previous accord, or the four quarterly adjustments that would have been effective during the August 1983-July 1984 portion of the new contract. After July 1984, employees will receive quarterly adjustments calculated at the existing rate of 1 cent an hour for each 0.3-point movement in the Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100), but payable only to the extent that any index rise from March 1984 to March 1985 exceeds 4 percent. Similarly, in the final 12 months of the contract, the first two adjustments will be paid only to the extent that the index rises more than 1.5 percent from March 1985. The final two adjustments (in February and May of 1986) will not be subject to any such offset. The union estimated that the workers would receive a total of 70 cents in adjustments over the term of the contract if the index rises at a 7-percent annual rate during the last 2 years of the agreement.

In another pay concession, the premium rate for regularly scheduled nonovertime work on Sunday was reduced to time and one-quarter from time and one-half, beginning March 1, 1983, to May 1, 1986, when it will be restored to time and one-half.

The Extended Vacation Plan was eliminated. Under this plan, employees in the top half of the seniority roll

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

received 13 weeks off (including regular annual vacation) every 5 years, and junior employees received 3 weeks plus their regular annual vacation.

All employees eligible for at least 2 weeks of annual vacation will lose 1 week in 1983, but that week will be restored for subsequent years. The parties also eliminated the vacation bonus, an amount that employees had received in addition to regular vacation pay to encourage them to take time off in periods other than the summer months. The bonus was \$30, \$50, or \$75 a week, depending on when the vacation was taken.

Also eliminated was the Savings and Vacation Plan that had been established in 1962 to provide retirement, savings, and supplemental vacation benefits. At the time of the 1983 settlement, the companies were financing the plan at the rate of about 15 cents per hour worked by covered employees.

The final change in paid time off was elimination of United Nations Day as an annual paid holiday, reducing paid time off to 10 days.

One of the union's major demands was met when the industry agreed to special incentives to induce some older workers to retire early and open jobs for laid-off employees. To be eligible for the early-out, employees must be at least age 60, have at least 30 years of service, and retire before May 1, 1983. The \$400-a-month supplement to the regular pension begins in the fourth month of retirement and continues for at least 12 months or until age 62, whichever come later. The union estimated that 10,000 employees were eligible for this benefit.

The steel companies agreed to raise their financing of Supplemental Unemployment Benefits from 17.5 cents an hour to 67.5 cents. After February 1, 1986, the rate will be reduced to 42.5 cents. In addition, the companies agreed to new short-term and long-term guarantees of weekly benefits to laid-off workers, regardless of the condition of the SUB fund. Under the short-term aspect, effective from March 1, 1983 to May 31, 1983, laid-off workers with 2 to 19 years of service were guaranteed payments equal to at least 30 percent of the amount they would receive if the fund was at the maximum level. (Laid-off employees with 20 years of service already were guaranteed full normal benefits for 2 years, regardless of fund level.) Under the long-term provision, laid-off employees with 10 to 20 years of service were guaranteed that payments for lost weeks including May 31, 1983, and ending prior to January 1, 1984, will be at least 30 percent of normal benefits. For lost weeks falling between January 1, 1984, and February 1, 1986, the guarantee will stay at 30 percent for laid-off workers with 10 but less than 15 years of service and increase to 60 percent for those with 15 but less than 20 years of service.

A major issue in the negotiations was resolved when

the employers agreed to "apply the savings received from the moderations contained in this agreement exclusively to the needs of the existing facilities covered by this agreement." The unions considered this provision vital because some union members were concerned that management might use cost savings for operations outside of steel production.

The union did not gain its demand for guarantees that the companies would not shut down steelmaking facilities. The rejected November 1982 proposal had called for a 1-year moratorium on plant closings, but some union members criticized it because it would not preclude partial shutdowns or layoffs.

A major factor in the negotiations that had a varying cost impact on the seven companies was their success in settling local issues, which were negotiated on a company-by-company basis. In local talks, the companies sought to reduce labor costs by modifying work rules that restricted output.

As expected, the parties did not renew the Experimental Negotiating Agreement, which they had allowed to lapse in 1980. Had it been in effect, employees would have been assured a 3-percent annual rise in compensation, continuation of the cost-of-living adjustment clause, and a \$150 bonus payment in exchange for giving up the right to strike over national economic issues. The demise of the agreement apparently resulted from management's concern that the wages and benefits guaranteed by the agreement was exceeding the cost savings resulting from more stable production.

The new wage-and-benefit terms covered about 265,000 active and laid-off employees of the seven companies and are expected to set a pattern for Steelworkers' settlements for 100,000 employees of other companies. The seven Coordinating Committee Steel Companies are: U.S. Steel Corp., Bethlehem Steel Corp., Jones & Laughlin Steel Corp., Republic Steel Corp., Inland Steel Corp., National Steel Corp., and Armco, Inc. In February, Allegheny Ludlum Steel Corp. left the association.

No wage changes in can contracts

After the steel settlement, the Steelworkers negotiated 3-year contracts with four can companies. These contracts did not provide for any wage changes (other than possible automatic cost-of-living adjustments) or changes in benefits. The companies involved in the settlement were American Can Co., Continental Group Inc., National Can Co., and Crown Cork and Seal Co.

The new contracts run to February 16, 1986, superseding the balance of agreements that had been scheduled to expire in February 1984. Continuation of the cost-of-living clause means that the pay of the 17,000 workers will continue to be adjusted quarterly

by 1 cent an hour for each 0.3-point movement in the Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100). Under the superseded agreement, cost-of-living pay increases had totaled \$1.35 an hour. There was one change in the cost-of-living provision: the accrued allowance will be incorporated into base pay rate annually (beginning in February 1984), rather than quarterly. This will save the employers some money because it will result in less frequent increases in those benefits that are linked to base pay rates.

An official of American Can Co., speaking for all of the firms, said the agreement represents a "major step toward a labor-management recognition of the common problems affecting the companies and our workers alike. Independent can makers are faced with a mature, slow-growth industry that is undergoing rapid technological change and encountering growing competition from nonunion can makers and alternative packaging materials."

Robert J. Petris, the official who led the union's bargaining team, said, "Basically we agreed to extend our current contracts another two years to help these can companies stay competitive, but we didn't give up anything." Apparently, the members of the union's Container Industry Conference also viewed the settlement favorably—particularly in comparison with the steel accord—as they gave it final approval by a 65 to 31 vote.

Nine glass container companies settle

In the glass container industry, nine companies settled with the Glass, Pottery and Plastics Workers on 3-year contracts that were expected to set a pattern for four other companies. The bargaining at the 13 companies covered 50,000 employees.

The contracts provided for general wage increases of 25 cents an hour in April 1983, 20 cents in September 1983, and 30 cents in April of 1984 and 1985. Employees in all areas except the West Coast will receive an additional 1-cent-an-hour increase on each of the dates to reduce a geographic pay disparity. Skilled employees at all locations will receive an additional 28 cents in the first contract year.

Improvements in job security included 90 days of pay if the employer does not give a 90-day advance notice of a shutdown; a 5-year recall right for laid-off workers (previously 2 years); 6 months of insurance continuation for laid-off workers; and a provision for negotiation of severance benefits in the event of plant closings.

Insurance changes included a \$3,000 increase in life coverage, bringing the range to \$16,000–\$18,000; a \$30 a week increase in sickness and accident benefits to a range of \$160–\$180; and improved dental coverage.

Union president James E. Hatfield said the settlement terms prove that "labor can win a good contract despite a faltering economy."

The largest of the companies that settled was Owens-Illinois Inc., with 12,000 workers covered at about 25 locations. Other companies were Brockway Glass Corp., Midland Glass Co., Thatcher Glass Manufacturing Co., Foster-Forbes Division of National Can Co., Glass Container Corp., Ball Corp., Kerr Glass Manufacturing Co., and Indian Head, Inc. The companies still bargaining were Anchor Hocking Glass Corp., Diamond Glass Co., Glenshaw Glass Co., and Chattanooga Glass Co.

Dow contract eliminates cost-of-living clause

In Midland, Mich., Dow Chemical Co. and Steelworkers' local 12075 negotiated a 3-year contract that provided for specified wage increases, but eliminated the automatic cost-of-living pay adjustment clause and made other changes beneficial to the company. The contract for the 2,600 employees deferred the date of the initial 4-percent specified wage increase to October 17, to be followed by a 3-percent increase on August 13, 1984, and another 4-percent increase on February 11, 1985. Dow gained the right to reduce starting pay rates by \$2.50–\$4 an hour for employees hired into the four lowest labor grades. A company official said the purpose "was to make it possible for us to make greater use of summer jobs for students," most of whom are sons and daughters of Dow employees.

To some extent, the termination of the provision for automatic quarterly cost-of-living pay adjustments could be offset by a new provision permitting the union to reopen wage negotiations prior to February 11, 1985, if the Consumer Price Index rises more than 6 percent from December 1983 to December 1984. Similarly, Dow can initiate talks if the index rises less than 2 percent.

The agreement also provided for changes in work rules and practices that the company said, "will help us do our job better and go a long way towards strengthening the jobs of our employees;" the hiring of contractors for some work, subject to some restrictions, during periods of slack business; changes in the health insurance to help contain costs; and expansion and broadening of apprenticeship training to better prepare workers for the "multi-craftsman" job category established 6 years earlier to increase the scope of job assignments.

Construction unions give employers cost relief

Continued high unemployment in the construction industry led unions in several areas to agree to wage cuts and freezes, changes in work rules, and changes in

bargaining approaches. A major factor in the unions' decisions was the increasing inroads of nonunion contractors which caused high unemployment among unionized construction workers, along with the general economic condition of the construction industry.

In Oregon and southwest Washington, 270 builders and four unions (Carpenters, Teamsters, Laborers, and Cement Finishers) representing more than 20,000 employees negotiated a 39-month contract that freezes wages for the first 27 months. During the final 12 months, wages will be adjusted based on the movement of consumer prices, and up to 90 cents an hour will be used to maintain existing health and welfare benefits.

In a move to improve the contractors ability to bid on projects, the Carpenters, Teamsters, and Laborers unions agreed to new pay rates for light commercial projects 20 percent lower than the previous uniform rate for all commercial work.

In eastern Washington, and northern Idaho, more than 6,000 construction workers represented by five unions agreed to a number of changes in work rules and a 1-year freeze to aid their employers. William N. Sarver, the head of the unions' bargaining team, said the aid was necessary because union construction workers had lost 40 percent of the regions' construction to nonunion shops over the past 5 years.

The 3-year accord does not provide for a wage increase during the first contract year, which begins when the existing contract expires on June 1, 1983. It does provide for possible wage changes in the second and third years, depending on the movement of the CPI.

Other terms included: a 25-cent-an-hour increase in the employer payment to health and welfare funds in June 1983 for maintaining benefit levels (additional financing will also become available in June of 1984 and 1985); a 20-percent pay cut for most work on commercial buildings costing \$2 million or less, and on private utility projects regardless of value; 1 or 2 hours "show-

up" pay, rather than 4 hours; time and one-half pay for all overtime work, rather than the double-time pay called for in some contracts; elimination of "me-too" clauses under which any advantage gained by a union at a building site was automatically extended to all other unions at the location; greater employer leeway in scheduling lunch periods; and establishment of a 45-mile "free zone" for travel.

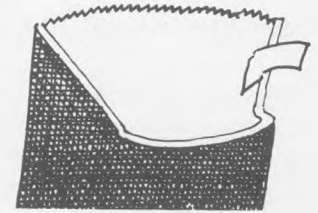
The unions involved in the settlement were the Teamsters, Carpenters, Cement Masons, Laborers, and Operating Engineers. The employers involved comprise the Inland Empire Chapter of the Associated General Contractors Association.

In Rockford, Ill., seven construction unions moved to reduce work stoppages by agreeing on a single multitrade contract. Previously, each trade negotiated separate agreements which expired at various times, increasing the possibility of strikes or lockouts. Several more unions are expected to join the multitrade contract when their current agreements expire.

The new 3-year agreement with the Northern Illinois Building Contractors Association provides for a wage freeze during the first year. In the second and third year, employees will receive wage increases contingent on the movement of the Consumer Price Index. The agreement provided for continuation of nonuniform pay rates for all of the trades, but the possible second and third year pay increases will be uniform.

In addition to the multitrade bargaining approach, the parties also adopted another tactic used elsewhere when they agreed on a common effort to increase their share of the available work. The effort, called "Project First Rate" will be financed by the 170-member contractors in the area, and is designed to increase the public's awareness of construction activity; improve productivity of union workers; and attain better working relationship with government agencies and construction users. □

Book Reviews



Labor in international waters

Labor Relations in Advanced Industrial Societies: Issues and Problems. Edited by Benjamin Martin and Everett M. Kassalow. Washington, Carnegie Endowment for International Peace, 1980. 206 pp. \$10.

The OECD Guidelines for Multinational Enterprises and Labor Relations, 1976-79: Experience and Review. By Roger Blanpain. Deventer, The Netherlands, Kluwer, 1979. 309 pp. Distributed in the United States by Kluwer Law and Taxation Publishers, Hingham, Mass.

These two volumes make useful contributions to our understanding of comparative industrial relations. The book edited by Benjamin Martin and Everett M. Kassalow is a collection of essays focusing on four current labor problems confronting all democratic advanced industrialized nations: the labor impact of multinational corporations, the problem of industrial conflict, the press for worker participation in management, and humanization of work in industry.

Duane Kujawa's essay on the labor relations practices of U.S. multinationals abroad shows that their foreign affiliates have considerable authority in making important industrial relations decisions. However, corporate parents have considerable influence on subsidiary labor relations, although this varies depending on the issue and technological or market conditions in the country concerned. Without exception, multinationals are reluctant to bargain or consult with unions on investment decisions, and their management expertise and technological and economic resources are important sources of bargaining power. However, the ability of multinationals to shift production from one subsidiary to another, either as a shortrun bargaining tactic or as a longer term strategy, is less significant than suggested by most union rhetoric.

The Kujawa essay also uses the product life-cycle theory of foreign trade and investment in seeking to explain labor relations differences between American multinationals operating abroad and foreign multinationals with American subsidiaries. Typically, U.S. multinationals have transferred production technologies to foreign subsidiaries. This has resulted in greater parent involvement in labor relations, in part, because of the Ameri-

can labor relations norms and practices embodied in these technologies. Foreign multinationals have imported technologies from U.S. subsidiaries and consequently, there is less parent involvement in subsidiary labor relations practices. This analysis supplies an interesting explanation of differences in labor relations management styles but, obviously, needs to be validated by a detailed assessment of the experience of individual firms.

The essays on industrial conflict are both provocative and insightful. Everett Kassalow argues that the generally higher incidence of industrial conflict in North America in comparison to Western Europe is characteristic of the different social and economic environment. These conditions include the absence of a successful Socialist party in the United States forcing collective bargaining to be the major forum to resolve complex social issues; the important role of industrywide bargaining and employers' organizations in Europe, making disagreement more costly to the parties, thus encouraging accommodation; and the more vigorous opposition to unionization by American employers. While the essay does not explore the underlying reasons for these different institutional traditions, clearly they have had an important influence on industrial conflict.

The essay by Solomon Levine and Koji Taira challenges the typical view of Japan as a conflict-free society, largely as a result of the importance of cultural values emphasizing harmony and order. Japan holds a middle position in the international table of industrial conflict and has experienced a rising number of strikes. Data show an inverse relationship between labor turnover and strike incidence in larger firms. Employment stability is manifested in the Japanese concept of lifetime job tenure. Paradoxically, it appears to have increased conflict. Workers with tenure are encouraged to support strike action to improve their circumstances within the firm, rather than to give up the benefits of long-term employment by "voting with their feet" to escape unacceptable employment conditions. The essay makes a generally persuasive case that Japanese industrial conflict patterns are more the result of generally applicable industrial and political variables rather than the key characteristics of Japanese culture.

Walter Korpi's essay critiques the "pluralistic industrialism" perspective on industrial conflict in Sweden.

This view suggests that as industrialism and technological advances evolve, conflict initially rises, but ultimately declines as union strength grows. Union recognition is granted by employers and institutions and the means to resolve industrial conflict are established, that is, mature collective bargaining systems (usually industry-wide), state mediation procedures, and a legal framework for the resolution of disputes. Conflict is managed and minimized by parties with roughly equal bargaining power. Using Sweden as a test case of this model, Korpi shows that industrial conflict was high for more than a decade following the establishment of this kind of institutional framework. He makes a persuasive case that a change in the distribution of political power is the most important cause of the low level of industrial conflict which Sweden has experienced since the late 1930's. The emergence of the Social Democrats as the majority government in the 1930's forced Swedish employers to reach an accommodation with the Confederation of Swedish Trade Unions (LO) and provided the labor movement the political muscle to implement social legislation. In fact, the evolution of a "mature industrial relations system" has had less influence on the level of industrial conflict in Sweden than changes in the distribution of political power in the wider society.

In dealing with worker participation in management, Rudolph Meidner's interesting essay on the Swedish proposal for capital formation through employee investment funds notes the distinctive basis for the Swedish trade union movement's support of this program. It follows from labor's solidarity wage policy, which seeks to equalize pay across industry to ensure that wage differences result only from distinctive job content characteristics. This policy's success has meant that the most efficient firms do not grant pay increases in accordance with full capacity to pay, thereby increasing profits and creating a source of wage drift. Increased profits result in continued income inequality, and wage drift negates the goals of the solidarity wage policy. In the mid-1970's, the Swedish LO proposed that 20 percent of a company's pretax profit should be transferred to an employee fund. This money would not be allowed to leave the firm but would remain as collectively owned capital administered by employee representatives. In general, the concept also was supported by the Swedish white-collar unions. As Meidner notes, the proposal generated considerable debate in the 1976 Swedish general election and, in fact, may have been a factor in the Social Democratic Party's first electoral defeat in more than 40 years. The wage earner fund concept has been debated with vigor in Sweden since 1976, but even with the reelection of a social democratic government in 1982, quick implementation does not appear likely. Swedish employers have vigorously opposed the scheme, arguing that it ultimately would result in trade union

control of Swedish industry. Meidner contends that the wage earner fund is another social policy which, in time, will be incorporated within the framework of the Swedish welfare state. However, the ongoing debate suggests it is a "nonreformist reform" in industrial relations and, therefore, likely to be a source of continuing controversy.

The essays on the humanization of work in industry are the weakest in the volume. The piece by Harold Sheppard generally describes the efforts to improve the quality of worklife in a number of American firms. French experience, which has largely been the result of legislative and other governmental initiatives, is documented by Yves Delamotte. Jack Barbash's essay, the strongest of the group, describes the U.S. and European experience with work humanization by identifying common ingredients of work reform, including improvements in work environment, and codetermination, that is, worker participation in enterprise decisionmaking. In the United States, most work reform initiatives have been proposed by management and American unions believe that these programs are threats to the integrity of the collective bargaining process. The attitudes of the European unions are variable, but they are more supportive of codetermination, which has increased worker influence on management decisionmaking, expanded the scope of collective bargaining, and improved the quality of worklife. In spite of these different attitudes, Barbash argues that work humanization programs will be an important topic in the future agendas of labor movements in Europe and North America.

Roger Blanpain's volume evaluates the experience with the guidelines developed for multinational corporations and adopted in 1976 by the Organization for Economic Cooperation and Development. The OECD guidelines cover a range of multinational activities, including disclosure of information, competition, financing, taxation, and science and technology. The guidelines address various topics in the field of industrial relations and employment, including employment security, union recognition and collective bargaining, disclosure of information, and access to corporate centers of decisionmaking. The criteria are not laws but moral obligations requiring publicity and monitoring to ensure observance.

The volume is not easy reading because of its heavy reliance on direct quotation or summarization, or both, of reports, by member governments and union and business groups. However, it does provide detailed information on the structure of OECD, the trade union and business advisory groups, and the OECD's Committee on International Investment and Multinational Enterprises, which sought to clarify the guidelines during 1976-79.

Blanpain notes that the multinationals accepted the

criteria as encouraging "national treatment" by member countries in accordance with national laws and regulations. Their support for these rules also may have been a result of fears that a more stringent set of guidelines might be established by union pressure. Member countries supported the guidelines to provide a set of rules for multinational behavior, although proposals for tighter restrictions were resisted by several member countries, including the United States. The international trade union movement was the most vigorous supporter of more strict and enforceable guidelines in its quest to curb alleged excesses of multinational behavior and to increase its bargaining power vis-a-vis these international corporate giants.

The book's centerpiece focuses on the Committee's review of guidelines. Within this process, the Committee received comments from both business and trade union groups and on a number of occasions from governments of member countries. Specifically, the trade unions presented a number of cases of alleged multinational misbehavior in the field of industrial relations to generate publicity and to encourage the Committee to become a monitor and interpreter of the guidelines in particular cases. and cases

Blanpain describes and comments on 16 cases submitted by trade union groups for review by the International Investment Committee. These cases included a variety of topics: the coresponsibility of a parent company for an affiliate's financial affairs, union access to "real" corporate decisionmakers, the propriety of a multinational corporation in closing down a marginally profitable subsidiary, the right of employees to be represented, provision of information to employees, reasonable notice in the case of major changes in enterprise operations, the obligation of a multinational to observe comparable standards of employment, transfer of employees between affiliates in the case of a labor dispute, and the definition of a multinational enterprise.

The International Investment Committee only clarified guidelines and did not make judgments on the behavior of companies in particular cases. In cases concerning the definition of a multinational enterprise and the bargaining role of international trade secretariats, the Committee did not take a precise position. In the case of coresponsibility of a multinational parent for its subsidiary's financial affairs, the Committee only gave qualified endorsement to this principle, although there is reason to believe that publicity resulting from the Committee's investigation in this case which involved the Belgian subsidiary of a U.S. corporation, encouraged more liberal treatment for the laid-off employees than would otherwise have been the case. Another case also involved a U.S. company. It had transferred employees to a Danish subsidiary from other European affiliates during a strike. The Committee recommended

a change in the guidelines, subsequently approved, to preclude the "transfer (of) employees from the enterprises' component entities in other countries in order to influence unfairly these negotiations or to hinder the exercise of a right to organize."

Clearly, the Committee has not become a factfinding body to adjudicate particular cases identified by the trade unions. However, its 1979 report, which was adopted by the OECD, requires followup reports during the next 5 years on two situations experienced by member governments, with a mid-term report to be published by the Committee in 1982 and another full review of the guidelines by 1984. Previous experience indicates that the role of trade unions and business groups in commenting on particular issues and concerns is now part of the review process.

Blanpain notes that the activities of the Committee have resulted in a clarification of perspectives concerning multinational behavior in member countries. Further, the OECD's 1979 decision has institutionalized the Committee's role and the guidelines' continued existence is accepted by member governments. Trade unions still propose a more active role for the committee as a factfinding adjudicative body, while business advisory groups take pains to stress the independence of multinationals within the framework of national laws, customs, and practices. In spite of these disagreements, Blanpain argues persuasively that the Committee is likely to remain an important and influential forum for clarifying and studying the experience of the OECD guidelines. Political realities, undoubtedly, will limit dramatic change, but the OECD review process should encourage a continuation of the guidelines and their more detailed application as standards of behavior for multinational corporations operating within the member countries.

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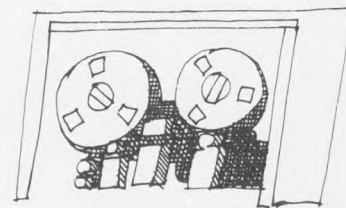
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NOTES ON CURRENT LABOR STATISTICS

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

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

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might otherwise mask short-term movements of the statistical series. Tables containing these data are identified as "seasonally adjusted." Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted labor force data in tables 3-8 were revised in the February 1983 issue of the *Review*, to reflect experience through 1982.

Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are being seasonally adjusted with a new procedure called X-11/ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year for the July-December period. Revisions of historical data continue to be made only at the end of each calendar year.

Annual revision of the seasonally adjusted payroll data shown in tables 11, 13, and 15 were made in August 1981 using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 29 and 30 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are

published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

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

Availability of information. Data that supplement the tables in this section are published by the Bureau of Labor Statistics in a variety of sources. Press releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule given below. More information from household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau. Comparable household information is published in a two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. Comparable establishment information appears in two data books—*Employment and Earnings, United States*, and *Employment and Earnings, States and Areas*, and their annual supplements. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

Symbols

p = preliminary. To improve the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.

r = revised. Generally, this revision reflects the availability of later data but may also reflect other adjustments.

n.e.c. = not elsewhere classified.

Schedule of release dates for major BLS statistical series

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment Cost Index	May 5	1st quarter	.....	.....	.....	.....	32-34
Employment situation	May 6	April	June 3	May	July 8	June	1-11
Producer Price Index	May 13	April	June 10	May	July 15	June	23-27
Consumer Price Index	May 24	April	June 22	May	July 22	June	19-22
Real earnings	May 24	April	June 22	May	July 22	June	12-16
Productivity and costs:							
Nonfinancial corporations					July 29	2nd quarter	28-31
Nonfarm business and manufacturing	May 26	1st quarter	.....	.....	.....	.....	28-31
Major collective bargaining settlements					July 28	1st half	35-37

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 177,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

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

Production workers in manufacturing include blue-collar worker supervisors and all nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12-17 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in transportation and public utilities; in wholesale and retail trade; in finance, insurance, and real estate; and in services industries. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types

of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries.

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

The Diffusion Index, introduced in table 17 of the May issue, represents the percent of 186 nonagricultural industries in which employment was rising over the indicated period. One-half of the industries with unchanged employment are counted as rising. In line with Bureau practice, data for the 3-, 6-, and 9-month spans are seasonally adjusted, while that for the 12-month span is unadjusted. The diffusion index is useful for measuring the dispersion of economic gains or losses and is also an economic indicator.

Notes on the data

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

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

UNEMPLOYMENT INSURANCE DATA

NATIONAL UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from monthly reports of unemployment insurance activity prepared by State agencies. Railroad unemployment insurance data are prepared by the U.S. Railroad Retirement Board.

Definitions

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

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

ployed. Persons not covered by unemployment insurance (about 10 percent of the labor force) and those who have exhausted or not yet earned benefit rights are excluded from the scope of the survey. **Initial claims** are notices filed by persons in unemployment insurance programs to indicate they are out of work and wish to begin receiving compensation. A claimant who continued to be unemployed a full week is then counted in the insured unemployment figure. The **rate of insured unemployment** expresses the number of insured unemployed as a percent of the average insured employment in a 12-month period.

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

18. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1982												1983	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	
All programs:														
Insured unemployment	4,723	4,892	4,760	4,388	4,327	4,495	4,398	4,283	4,391	4,635	5,074	5,459	5,436	
State unemployment insurance program: ¹														
Initial claims ²	2,272	2,418	2,347	1,989	2,399	2,655	2,358	2,342	2,443	2,661	3,080	3,143	2,142	
Insured unemployment (average weekly volume)	4,376	4,282	4,067	3,729	3,707	3,912	3,831	3,712	3,828	4,156	4,581	4,923	4,759	
Rate of insured unemployment	5.0	4.9	4.6	4.3	4.3	4.6	4.4	4.2	4.4	4.7	5.2	5.6	5.5	
Weeks of unemployment compensated	15,631	18,144	16,158	13,679	14,648	14,655	15,015	14,547	13,786	15,170	17,873	17,097	16,015	
Average weekly benefit amount for total unemployment	\$116.95	\$117.10	\$117.61	\$118.08	\$118.64	\$117.28	\$118.97	\$120.78	\$122.81	\$123.43	\$123.42	\$125.93	\$126.44	
Total benefits paid	\$1,781,830	\$2,072,642	\$1,849,881	\$1,573,444	\$1,692,150	\$1,679,378	\$1,746,195	\$1,710,573	\$1,647,343	\$1,820,019	\$2,135,302	\$2,087,819	\$1,970,484	
State unemployment insurance program: ¹ (Seasonally adjusted data)														
Initial claims ²	2,354	2,521	2,442	2,379	2,528	2,317	2,814	2,902	2,688	2,680	2,586	2,187	2,217	
Insured unemployment (average weekly volume)	3,644	3,777	3,939	3,925	3,995	3,959	4,137	4,446	4,680	4,618	4,355	3,980	3,979	
Rate of insured unemployment	4.2	4.3	4.5	4.5	4.6	4.5	4.7	5.1	5.3	5.3	5.0	4.6	4.6	
Unemployment compensation for ex-servicemen: ³														
Initial claims ¹	8	10	9	8	10	10	11	11	10	17	24	21	16	
Insured unemployment (average weekly volume)	13	11	10	9	8	7	7	8	9	14	26	37	37	
Weeks of unemployment compensated	49	48	37	31	29	25	24	25	28	33	90	126	136	
Total benefits paid	\$5,304	\$5,141	\$4,013	\$3,395	\$3,314	\$2,821	\$2,793	\$2,900	\$3,366	\$4,006	\$11,191	\$15,861	\$17,151	
Unemployment compensation for Federal civilian employees: ⁴														
Initial claims	12	13	13	11	14	13	12	13	16	14	15	16	10	
Insured unemployment (average weekly volume)	40	38	33	29	28	29	27	26	28	31	33	35	33	
Weeks of unemployment compensated	154	172	146	120	123	120	118	111	110	126	146	135	125	
Total benefits paid	\$17,517	\$19,677	\$16,806	\$13,526	\$13,922	\$13,445	\$13,140	\$12,303	\$12,144	\$14,023	\$16,114	\$15,381	\$14,528	
Railroad unemployment insurance:														
Applications	11	9	5	5	36	68	68	14	20	17	17	20	7	
Insured unemployment (average weekly volume)	67	65	57	44	44	55	55	61	82	81	83	102	72	
Number of payments	140	154	130	95	93	100	100	137	159	162	172	219	158	
Average amount of benefit payment	\$214.07	\$215.71	\$209.48	\$200.75	\$199.15	\$202.54	\$202.54	\$216.14	\$212.35	\$216.55	\$217.00	\$220.32	\$214.54	
Total benefits paid	\$28,011	\$33,853	\$26,262	\$19,110	\$18,574	\$17,998	\$17,998	\$31,123	\$31,638	\$35,061	\$39,500	\$44,514	\$33,100	
Employment service: ⁵														
New applications and renewals	.....	7,439	.....	.....	10,965	.....	.....	14,320	.....	.....	.....	.....	.....
Nonfarm placements	.....	1,232	.....	.....	1,902	.....	.....	2,804	.....	.....	.....	.....	.....

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

² Excludes transition claims under State programs.

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

⁴ Excludes data on claims and payments made jointly with State programs.

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

Note: Data for Puerto Rico and the Virgin Islands included. Dashes indicate data not available.

p = preliminary.

r = revised.

PRICE DATA

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

Definitions

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

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

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

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

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

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States, from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

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

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

Notes on the data

Regional CPI's cross classified by population size were introduced in the May 1978 *Review*. These indexes enable users in local areas for which an index is not published to get a better approximation of the CPI for their area by using the appropriate population size class measure for their region. The cross-classified indexes are published bi-monthly. (See table 21.)

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

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

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

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

Beginning with the January 1983 data, tables 20 through 22 introduce a new treatment of homeownership costs into the Consumer Price Index for All Urban Consumers (CPI-U). The Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) will not be affected by this change until 1985. For an explanation of the change, see "Changing the treatment of shelter costs for homeowners in the CPI" by Robert Gillingham and Walter Lane in the June 1982 issue of the *Monthly Labor Review* and "Labor Month in the Review" in the March 1983 issue. Additional information appears in the *CPI Detailed Report*, January 1983.

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers						
	1982					1983		1982					1983	
	Feb.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Feb.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
	MEDICAL CARE—Continued													
Medical care service—Continued														
Professional services—Continued														
Dental services	276.8	287.7	287.0	289.2	290.1	291.6	294.0	274.9	285.7	285.0	287.0	288.0	289.3	291.8
Other professional services (12/77 = 100)	141.5	145.9	146.1	147.2	147.6	149.1	150.5	138.5	142.7	143.0	143.9	144.4	145.7	147.2
Other medical care services														
Hospital and other medical services (12/77 = 100)	400.8	434.1	439.8	446.8	450.8	455.9	461.3	398.0	429.9	435.6	442.3	446.3	451.3	457.0
Hospital room	167.1	178.3	180.0	182.6	183.2	185.1	188.6	165.7	176.5	178.3	180.7	181.5	183.4	187.0
Other hospital and medical care services (12/77 = 100)	533.8	570.1	576.8	586.6	588.5	594.6	604.1	527.0	562.1	569.1	578.7	581.5	587.1	596.7
	163.8	174.7	176.0	176.0	178.7	180.6	184.5	163.0	173.3	174.7	176.7	177.5	179.4	183.3
ENTERTAINMENT														
	231.2	238.3	240.3	239.9	240.1	241.5	243.1	228.1	234.8	236.5	236.1	236.5	237.7	239.5
Entertainment commodities														
	234.3	240.8	242.9	241.4	241.8	242.6	244.5	228.9	235.0	236.6	235.4	236.0	236.7	238.8
Reading materials (12/77 = 100)														
Newspapers	144.1	150.1	153.1	153.4	154.3	156.1	156.1	143.3	149.6	152.4	152.7	153.8	155.5	155.5
Magazines, periodicals, and books (12/77 = 100)	273.1	288.5	290.4	290.9	294.7	295.7	296.5	272.8	288.2	290.1	290.5	294.8	295.6	296.4
	149.9	153.9	159.2	159.6	159.3	162.6	162.2	149.7	153.8	159.2	159.6	159.2	162.6	162.1
Sporting goods and equipment (12/77 = 100)														
Sport vehicles (12/77 = 100)	131.5	132.9	134.3	132.1	131.6	131.5	133.4	123.9	125.0	125.8	124.7	124.3	124.4	127.0
Indoor and warm weather sport equipment (12/77 = 100)	133.9	135.3	137.1	133.8	133.3	132.9	136.1	121.9	122.8	123.6	122.2	122.0	122.0	126.0
Bicycles	119.6	120.5	120.6	119.9	120.0	120.3	120.5	117.7	118.1	118.3	117.6	117.7	117.0	117.9
Other sporting goods and equipment (12/77 = 100)	197.3	199.0	198.7	198.3	197.1	197.3	196.7	198.9	200.0	199.9	199.5	198.5	198.4	197.7
	127.0	129.4	131.9	131.5	130.6	131.4	132.1	127.4	129.8	132.1	131.3	130.0	130.9	131.9
Toys, hobbies, and other entertainment (12/77 = 100)														
Photographic supplies and equipment (12/77 = 100)	133.2	137.1	137.1	136.4	136.8	136.8	138.0	132.3	136.0	136.1	135.2	135.6	136.6	136.7
Pet supplies and expenses (12/77 = 100)	131.7	136.4	136.4	135.5	135.5	135.5	136.9	128.6	132.9	133.0	131.8	132.0	131.9	133.0
	126.9	130.1	129.6	129.0	129.7	129.9	131.2	127.9	131.3	130.6	130.1	130.8	131.0	132.3
	140.6	143.4	143.9	143.4	144.2	144.2	144.9	141.6	144.6	145.0	144.5	145.1	145.1	145.9
Entertainment services														
	227.1	235.2	237.2	238.2	238.2	240.5	241.6	227.8	235.8	237.6	238.4	238.5	240.8	241.8
Fees for participant sports (12/77 = 100)														
Admissions (12/77 = 100)	140.9	146.0	148.0	149.0	148.9	150.0	150.6	142.5	147.4	149.4	150.1	150.0	151.2	151.7
Other entertainment services (12/77 = 100)	131.6	136.4	136.6	136.9	137.3	139.9	140.9	130.6	135.5	135.6	135.9	136.4	138.8	139.8
	125.0	128.8	129.6	129.8	129.6	129.8	130.3	125.9	129.6	130.5	130.7	130.6	130.6	131.2
OTHER GOODS AND SERVICES														
	250.3	266.6	271.2	273.8	276.6	279.9	281.6	247.1	262.8	267.8	270.9	274.0	277.8	279.6
Tobacco products														
	230.7	246.8	257.3	264.0	272.3	280.3	282.8	229.8	246.1	256.6	263.4	271.9	279.9	282.2
Cigarettes														
Other tobacco products and smoking accessories (12/77 = 100)	233.6	250.6	262.3	269.8	279.0	287.6	290.0	232.7	249.8	261.4	268.8	278.0	286.5	288.8
	136.8	142.6	142.9	142.8	143.8	145.8	147.8	136.9	142.8	143.1	143.0	143.9	145.8	147.7
Personal care														
	242.3	251.1	252.9	254.2	254.8	256.1	257.8	240.4	249.3	250.9	252.1	252.5	253.9	255.5
Toilet goods and personal care appliances														
Products for the hair, hairpieces, and wigs (12/77 = 100)	238.5	249.1	251.5	253.5	252.2	253.9	256.0	239.2	250.0	252.1	254.1	253.1	254.8	256.8
Dental and shaving products (12/77 = 100)	138.4	144.6	147.8	148.3	146.8	147.1	148.1	137.8	144.0	146.9	147.3	146.2	146.5	147.4
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	145.6	153.3	155.2	157.2	156.2	157.6	159.3	144.2	151.8	153.5	155.4	154.6	155.9	157.8
Other toilet goods and small personal care appliances (12/77 = 100)	135.0	140.7	141.4	141.7	142.2	144.0	145.6	135.8	141.4	142.1	142.3	143.0	144.8	146.4
	137.0	142.4	142.2	144.7	143.2	143.6	144.1	140.2	146.2	145.8	148.4	147.0	147.3	147.7
Personal care services														
Beauty parlor services for women	246.5	253.8	255.1	255.8	258.0	259.0	260.4	241.8	248.9	250.0	250.6	252.4	253.4	254.7
Haircuts and other barber shop services for men (12/77 = 100)	247.7	256.3	258.3	258.9	262.1	263.3	264.4	241.3	249.8	251.6	252.1	254.7	255.8	256.8
	138.4	141.1	141.0	141.4	141.6	142.0	143.1	137.2	139.9	139.8	140.3	140.4	140.8	141.9
Personal and educational expenses														
	289.2	316.1	319.3	320.0	320.5	322.1	323.3	290.2	317.4	320.4	321.3	321.7	323.6	325.0
Schoolbooks and supplies														
Personal and educational services	262.9	280.5	283.0	283.1	283.3	288.4	292.0	267.1	284.3	286.8	286.8	287.0	292.4	296.0
Tuition and other school fees	295.8	324.4	327.7	328.6	329.1	330.2	331.0	296.3	325.6	328.7	329.8	330.3	331.5	332.5
College tuition (12/77 = 100)	150.6	165.6	167.2	167.2	167.2	167.3	167.4	150.9	166.2	167.7	167.7	167.7	167.7	167.9
Elementary and high school tuition (12/77 = 100)	150.1	164.9	166.8	166.8	166.8	166.9	167.0	149.8	165.0	166.9	166.9	166.9	167.0	167.1
Personal expenses (12/77 = 100)	152.2	168.7	168.6	168.7	168.7	168.7	168.8	152.9	169.6	169.6	169.7	169.7	169.7	169.8
	156.1	169.4	171.9	174.1	175.4	178.8	179.6	155.3	169.6	171.7	174.0	175.2	177.9	179.5
Special indexes:														
Gasoline, motor oil, coolant, and other products	393.9	389.2	385.7	383.5	377.0	367.9	355.8	395.3	390.3	386.9	384.8	378.5	369.4	357.3
Insurance and finance	424.8	436.0	432.9	426.2	413.4			423.5	436.3	433.9	427.2	414.7	411.1	411.6
Utilities and public transportation	299.1	323.8	326.5	324.1	326.0	329.1	329.4	297.7	322.8	325.4	323.2	325.1	328.1	328.5
Housekeeping and home maintenance services	344.0	353.8	355.0	354.8	354.0	355.3	355.1	344.2	354.6	355.7	355.4	354.4	357.9	356.5

¹ Excludes motor oil, coolant, and other products as of January 1983.

² See box with "Price Data."

c = corrected.

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

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000-1.250 million)			Size class C (75,000-385,000)			Size class D (75,000 or less)		
	1982			1982			1982			1982		
	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.
Northeast												
EXPENDITURE CATEGORY												
All items	151.8	151.0	151.8	156.6	157.1	158.2	160.7	162.3	162.9	155.8	156.3	156.1
Food and beverages	145.1	144.4	146.0	142.4	142.1	144.2	147.0	147.4	149.8	141.9	142.0	144.0
Housing	157.7	155.9	156.7	164.9	166.5	168.8	172.9	175.2	176.2	163.0	163.2	163.1
Apparel and upkeep	122.2	119.8	120.3	127.0	124.9	121.9	128.5	129.1	126.6	131.4	131.1	124.3
Transportation	160.7	161.0	159.1	166.6	166.7	164.8	165.2	166.2	164.2	164.6	164.5	162.5
Medical care	151.4	153.6	158.1	158.1	160.6	161.6	161.5	163.6	165.5	157.0	159.8	164.1
Entertainment	140.6	140.2	141.6	139.9	135.9	139.1	138.1	139.2	140.0	144.8	145.0	147.2
Other goods and services	150.0	152.8	154.4	151.4	153.9	157.3	154.3	157.8	160.4	153.4	158.7	159.4
COMMODITY AND SERVICE GROUP												
Commodities	147.7	147.5	147.6	152.4	153.5	153.1	152.0	153.7	153.3	150.9	151.7	150.2
Commodities less food and beverages	149.3	149.4	148.4	157.2	159.0	157.1	154.3	156.6	154.5	155.2	156.3	152.7
Services	157.1	155.6	157.1	163.3	162.9	166.1	175.0	176.4	178.3	163.5	163.4	165.1
North Central Region												
EXPENDITURE CATEGORY												
All items	163.1	162.0	162.4	158.9	159.3	159.6	155.9	156.2	155.8	159.0	156.8	156.6
Food and beverages	143.5	143.3	144.7	142.6	141.9	143.4	143.8	143.4	143.8	149.2	149.1	149.1
Housing	181.2	179.1	180.2	168.5	169.1	170.2	162.6	162.8	163.2	167.8	161.9	162.2
Apparel and upkeep	118.8	116.4	115.4	128.7	129.4	124.4	127.8	126.1	124.1	121.9	121.4	122.0
Transportation	164.5	163.8	160.7	164.1	164.5	162.1	165.0	165.2	162.0	163.1	163.8	160.6
Medical care	157.9	160.3	164.2	162.7	164.0	167.7	160.9	162.9	164.7	163.7	166.5	171.0
Entertainment	140.7	140.2	141.3	133.5	134.1	135.9	142.5	143.7	144.3	133.3	134.5	135.2
Other goods and services	150.5	152.8	155.4	161.4	163.8	167.5	148.1	150.6	152.9	157.3	160.3	163.3
COMMODITY AND SERVICE GROUP												
Commodities	151.9	151.7	151.2	149.7	150.8	149.7	148.2	148.7	147.2	147.6	148.4	147.2
Commodities less food and beverages	155.8	155.7	153.9	152.6	154.5	152.0	150.1	150.9	148.4	147.0	148.1	146.2
Services	179.7	177.3	178.8	173.7	173.1	175.3	168.6	168.4	169.6	177.0	170.1	171.5
South												
EXPENDITURE CATEGORY												
All items	158.1	157.5	158.0	159.6	159.3	159.5	159.1	158.8	159.0	159.8	159.1	159.5
Food and beverages	146.8	147.0	148.7	146.4	146.4	147.3	145.6	145.4	146.1	147.5	147.3	147.7
Housing	166.1	164.3	164.9	167.5	166.0	166.1	167.3	166.0	167.3	169.7	168.2	169.9
Apparel and upkeep	127.5	128.0	127.6	125.3	124.7	124.0	123.7	122.6	120.1	112.4	111.1	108.3
Transportation	164.7	164.6	162.1	167.7	168.0	165.0	166.0	166.8	163.8	164.5	163.5	161.3
Medical care	160.9	164.0	167.1	161.3	163.5	167.2	169.4	173.5	176.8	173.9	179.4	182.5
Entertainment	135.5	135.0	137.5	147.3	148.5	151.0	144.5	144.4	145.9	149.7	143.8	145.4
Other goods and services	152.9	155.0	157.5	152.5	158.1	163.2	153.3	154.9	157.8	153.2	155.8	160.3
COMMODITY AND SERVICE GROUP												
Commodities	150.1	150.9	150.9	151.7	152.3	151.7	149.9	150.2	149.2	150.6	150.6	149.2
Commodities less food and beverages	151.6	152.6	151.5	154.0	154.8	153.2	151.8	152.3	150.2	152.0	151.9	149.6
Services	169.2	166.9	167.9	171.5	169.9	171.1	173.2	172.1	173.9	173.6	172.1	174.9
West												
EXPENDITURE CATEGORY												
All items	160.3	156.9	157.8	160.1	157.9	158.3	152.6	150.1	151.0	158.1	157.8	157.9
Food and beverages	148.3	147.8	149.3	148.6	149.2	150.6	145.7	144.8	146.0	150.8	150.7	150.6
Housing	166.9	160.7	163.2	166.0	161.2	162.2	153.4	148.3	150.1	158.7	158.3	159.3
Apparel and upkeep	120.7	119.9	120.1	126.5	125.8	125.1	123.8	123.4	122.4	138.6	136.9	139.7
Transportation	169.4	166.3	162.8	169.8	168.1	165.3	166.0	165.1	161.0	165.7	165.2	162.0
Medical care	168.9	171.1	174.4	165.1	168.4	170.5	168.8	170.7	174.2	169.6	171.5	173.3
Entertainment	136.6	137.8	139.2	142.4	142.5	144.7	136.2	137.2	143.3	154.9	154.3	155.2
Other goods and services	155.4	159.3	162.9	155.0	158.9	161.7	148.0	153.0	155.9	164.2	165.2	168.8
COMMODITY AND SERVICE GROUP												
Commodities	149.4	148.1	148.0	151.6	150.7	150.5	150.6	149.0	148.5	147.7	148.9	148.0
Commodities less food and beverages	149.9	148.3	147.0	152.9	151.3	150.1	152.6	150.7	148.6	146.4	148.1	146.8
Services	174.8	168.5	170.7	171.8	167.9	169.0	155.4	151.7	154.0	173.4	171.0	172.5

22. 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)						
	1982					1983		1982					1983	
	Feb.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Feb.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
U.S. city average ²	283.4	293.3	294.1	293.6	...	...	293.2	282.9	292.8	293.6	293.2	...	...	292.3
Anchorage, Alaska (10/67=100)	...	263.4	...	257.2	...	257.6	...	...	258.9	...	254.4	...	250.6	...
Atlanta, Ga.	279.8	...	297.8	...	296.1	...	295.1	282.7	...	298.7	...	297.8	...	297.0
Baltimore, Md.	...	289.2	...	290.1	...	291.4	...	...	288.8	...	289.7	...	...	289.7
Boston, Mass.	...	282.9	...	285.0	...	286.2	...	...	282.7	...	284.4	...	...	283.9
Buffalo, N.Y.	259.9	...	277.1	...	277.8	...	280.3	258.0	...	274.3	...	275.0	...	276.5
Chicago, Ill.-Northwestern Ind.	274.9	294.0	294.4	294.3	293.1	294.0	293.7	275.4	292.9	293.2	293.1	291.8	292.8	291.4
Cincinnati, Ohio-Ky.-Ind.	...	300.2	...	304.2	...	306.0	...	...	302.8	...	307.1	...	305.2	...
Cleveland, Ohio	285.9	...	316.6	...	317.6	...	319.9	285.0	...	314.1	...	315.0	...	313.7
Dallas-Ft. Worth, Tex.	293.6	...	306.7	...	303.3	...	304.5	289.8	...	302.5	...	299.4	...	298.1
Denver-Boulder, Colo.	...	324.5	...	326.2	...	327.5	...	...	331.3	...	332.5	...	323.9	...
Detroit, Mich.	277.8	294.9	295.2	296.0	292.6	292.6	292.3	274.8	291.2	291.2	292.1	288.7	288.0	287.1
Honolulu, Hawaii	262.0	...	275.2	...	269.9	...	270.4	263.0	...	274.7	...	271.0	...	274.8
Houston, Tex.	304.1	...	317.6	...	318.1	...	317.3	300.3	...	314.9	...	316.1	...	317.4
Kansas City, Mo.-Kansas	276.0	...	289.3	...	290.6	...	292.3	274.1	...	287.3	...	288.6	...	289.0
Los Angeles-Long Beach, Anaheim, Calif.	285.4	288.2	289.5	288.5	285.3	285.6	286.8	289.2	291.7	292.8	291.6	288.0	288.0	290.1
Miami, Fla. (11/77=100)	...	156.1	...	156.8	...	157.9	...	...	157.5	...	158.6	...	159.2	...
Milwaukee, Wis.	...	302.4	...	303.1	...	305.0	...	...	306.3	...	306.9	...	303.5	...
Minneapolis-St. Paul, Minn.-Wis.	306.0	...	307.7	...	306.1	...	305.8	305.3	...	307.6	...	306.1	...	309.0
New York, N.Y.-Northeastern N.J.	269.0	280.7	284.5	283.6	281.8	282.6	283.2	267.8	278.9	282.7	281.9	280.3	280.8	279.6
Northeast, Pa. (Scranton)	...	276.0	...	279.4	...	278.9	...	...	277.1	...	280.6	...	282.6	...
Philadelphia, Pa.-N.J.	275.5	263.0	281.8	282.9	281.6	282.1	282.0	275.1	282.1	281.2	282.0	281.0	282.5	283.3
Pittsburgh, Pa.	278.6	...	300.7	...	302.1	...	304.8	280.0	...	300.3	...	301.7	...	296.6
Portland, Oreg.-Wash.	...	288.2	...	285.6	...	286.6	...	...	285.8	...	283.5	...	281.7	...
St. Louis, Mo.-Ill.	...	294.1	...	290.0	...	291.1	...	...	293.1	...	288.9	...	285.3	...
San Diego, Calif.	...	325.6	...	321.7	...	324.9	...	...	321.1	...	318.2	...	313.6	...
San Francisco-Oakland, Calif.	295.8	...	302.4	...	293.9	...	297.3	294.9	...	301.3	...	293.6	...	293.9
Seattle-Everett, Wash.	...	302.2	...	297.5	...	297.5	...	...	298.3	...	294.1	...	291.4	...
Washington, D.C.-Md.-Va.	...	286.5	...	286.3	...	289.0	...	...	291.9	...	291.6	...	292.9	...

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

Area is used for New York and Chicago.

² Average of 85 cities.

23. Producer Price Indexes, by stage of processing

[1967=100]

Commodity grouping	Annual average 1982	1982											1983		
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov. ¹	Dec.	Jan.	Feb.	Mar.	
FINISHED GOODS															
Finished goods	280.6	277.3	277.3	277.8	279.9	281.7	282.3	281.2	284.1	284.9	285.1	283.6	283.7	283.4	
Finished consumer goods	280.9	277.7	277.3	277.7	280.1	282.1	282.8	281.9	284.3	'285.3	285.1	283.0	283.0	282.5	
Finished consumer foods	259.3	257.1	260.0	262.3	263.4	260.6	259.7	259.9	257.7	'257.4	258.2	258.3	259.9	260.8	
Crude	252.5	263.3	266.6	259.9	254.7	241.0	239.2	228.2	232.4	'236.1	247.2	232.6	240.4	247.5	
Processed	257.7	254.5	257.3	260.3	262.0	260.2	259.4	260.6	257.9	'257.2	257.1	258.4	259.5	259.9	
Nondurable goods less foods	333.5	328.8	325.7	324.3	328.7	335.3	337.2	338.3	340.0	'342.5	341.4	335.2	332.5	330.6	
Durable goods	226.7	223.9	224.1	225.0	225.9	226.7	227.5	223.0	231.0	'231.2	231.5	231.9	233.5	233.1	
Consumer nondurable goods less food and energy	223.6	220.5	222.3	223.1	223.5	223.7	224.3	225.5	227.8	'228.4	228.3	227.4	227.7	228.1	
Capital equipment	279.6	275.8	277.2	278.1	279.2	280.2	280.7	278.7	283.2	'283.8	285.1	285.7	286.2	286.5	
INTERMEDIATE MATERIALS															
Intermediate materials, supplies, and components	310.4	310.6	309.9	309.8	309.9	311.1	310.8	310.5	309.9	'309.9	310.2	309.9	310.5	309.2	
Materials and components for manufacturing	289.9	290.4	290.6	291.4	289.8	289.2	288.7	289.9	289.4	'288.7	288.7	289.0	291.3	290.3	
Materials for food manufacturing	255.2	252.0	254.4	260.0	260.7	259.7	258.0	257.3	254.2	'251.0	250.1	250.9	253.0	252.5	
Materials for nondurable manufacturing	284.5	288.8	287.6	287.6	285.4	283.1	282.6	281.7	280.4	'279.2	278.2	277.4	277.4	277.0	
Materials for durable manufacturing	310.1	310.9	311.0	311.0	307.5	308.0	306.5	310.5	309.8	'309.3	309.8	312.1	319.1	315.0	
Components for manufacturing	274.0	271.8	272.6	273.6	273.6	273.9	274.3	275.8	276.7	'276.9	277.7	277.4	278.1	279.0	
Materials and components for construction	293.5	293.3	294.0	293.7	294.5	294.3	293.5	294.2	293.7	'293.6	294.5	296.2	298.6	299.4	
Processed fuels and lubricants	591.8	593.0	579.9	570.9	581.1	600.7	603.8	592.3	590.0	'593.0	593.6	583.5	571.1	557.9	
Manufacturing industries	497.9	496.1	487.5	481.4	491.7	506.9	510.7	496.4	496.6	'500.4	500.4	493.2	483.5	471.8	
Nonmanufacturing industries	674.4	678.3	661.1	649.5	659.5	683.0	685.5	676.9	672.1	'674.2	675.5	662.7	647.8	633.4	
Containers	285.5	286.3	287.0	287.0	286.5	286.3	285.4	285.3	285.1	'284.9	284.6	284.9	285.1	285.3	
Supplies	272.2	270.6	272.1	273.4	273.4	273.1	272.6	272.2	272.0	'272.8	273.2	273.6	274.2	274.5	
Manufacturing industries	266.0	264.5	265.3	266.7	266.7	266.8	266.5	266.7	266.9	'266.9	267.4	268.0	268.7	268.9	
Nonmanufacturing industries	275.7	274.1	276.0	277.2	277.1	276.7	276.0	275.3	274.9	'276.1	276.5	276.8	277.3	277.6	
Feeds	207.1	208.1	213.1	214.2	213.1	210.3	203.1	198.1	192.9	'199.8	204.9	206.9	207.6	207.8	
Other supplies	289.9	287.9	288.9	290.1	290.4	290.5	291.1	291.3	291.9	'291.9	291.3	291.3	291.8	292.1	
CRUDE MATERIALS															
Crude materials for further processing	319.5	320.0	322.6	328.3	325.6	323.4	319.8	316.1	312.0	'313.2	312.6	313.7	321.0	322.1	
Foodstuffs and feedstuffs	247.8	247.9	254.4	262.6	259.9	255.5	249.6	242.9	236.3	236.3	237.0	239.6	249.3	249.1	
Nonfood materials	474.0	475.2	469.9	470.2	467.7	469.8	471.0	473.7	474.8	'478.6	475.0	473.0	475.5	479.4	
Nonfood materials except fuel	376.9	387.1	378.8	376.6	370.0	369.2	369.5	369.5	371.9	'369.2	366.0	368.1	366.6	367.1	
Manufacturing industries	387.2	398.4	389.0	386.3	378.9	378.4	378.9	379.1	382.2	'379.2	375.0	377.5	375.5	376.2	
Construction	270.7	273.2	273.3	274.5	274.2	271.4	270.3	268.8	266.3	'265.6	269.4	268.9	270.8	270.2	
Crude fuel	886.3	839.7	851.2	864.8	883.9	901.3	906.9	923.5	917.2	'954.7	949.5	926.3	949.1	970.0	
Manufacturing industries	1,034.8	974.7	989.1	1,006.7	1,032.0	1,053.9	1,061.1	1,083.6	1,075.3	'1,124.5	1,117.0	1,088.2	1,118.7	1,144.8	
Nonmanufacturing industries	782.7	746.6	755.8	766.4	780.5	794.5	798.9	810.7	805.9	'834.2	830.9	812.0	828.8	845.7	
SPECIAL GROUPINGS															
Finished goods excluding foods	285.7	281.9	281.1	281.0	283.4	286.7	287.9	286.3	290.8	'292.0	292.0	289.9	289.6	288.8	
Finished consumer goods excluding foods	287.8	284.0	282.3	281.8	284.8	288.8	290.2	288.9	293.3	'294.8	294.3	291.1	290.3	289.1	
Finished consumer goods less energy	251.2	241.3	243.0	244.3	245.1	244.5	244.7	243.9	246.5	'246.7	247.0	246.9	248.0	248.4	
Intermediate materials less foods and feeds	315.7	316.0	315.1	314.6	314.7	316.1	316.0	315.9	315.5	'315.5	315.7	315.3	315.9	314.5	
Intermediate materials less energy	290.5	290.5	291.0	291.6	290.8	290.4	289.7	290.5	290.1	'289.8	290.2	290.7	292.6	292.3	
Intermediate foods and feeds	239.5	237.7	240.9	245.0	245.1	243.6	240.2	238.1	234.4	'234.4	235.4	236.5	238.2	237.9	
Crude materials less agricultural products	536.5	538.4	531.6	531.5	529.1	531.5	532.0	535.5	537.2	'541.9	537.0	534.8	537.5	541.7	
Crude materials less energy	240.4	242.8	247.3	252.8	248.7	245.1	240.7	235.6	230.0	'229.2	229.9	232.6	241.6	242.8	

¹ Data for November 1982 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r= revised.

25. Producer Price Indexes, for special commodity groupings

[1967=100 unless otherwise specified]

Commodity grouping	Annual average 1982	1982										1983		
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov. ¹	Dec.	Jan.	Feb.	Mar.
All commodities — less farm products	303.0	301.4	300.9	301.2	302.2	303.9	304.1	303.7	304.7	r 305.1	305.2	304.6	305.2	304.4
All foods	254.5	251.6	254.7	257.9	259.0	256.6	255.8	255.3	252.8	r 251.9	252.7	252.4	254.7	255.5
Processed foods	256.1	252.1	255.1	259.0	260.8	259.5	258.7	259.2	256.2	r 254.7	254.8	255.8	258.2	258.6
Industrial commodities less fuels	272.8	271.7	272.3	272.8	272.4	272.5	272.6	272.5	274.4	r 274.4	274.8	275.4	277.0	277.0
Selected textile mill products (Dec. 1975 = 100)	138.2	139.0	139.0	138.7	138.2	137.6	137.8	137.8	137.4	r 137.1	136.6	136.6	136.7	137.1
Hosiery	138.3	137.5	138.0	138.5	138.5	138.5	138.5	138.7	138.7	r 139.7	139.7	141.7	144.5	144.5
Underwear and nightwear	217.4	215.9	215.9	215.9	217.4	218.6	218.6	219.6	220.1	r 219.7	219.5	223.1	222.3	223.8
Chemicals and allied products, including synthetic rubber and fibers and yarns	283.9	285.6	285.6	286.1	284.5	282.9	283.3	282.5	281.8	r 282.3	281.2	280.8	281.6	281.1
Pharmaceutical preparations	206.0	201.1	204.5	205.8	205.4	205.9	207.4	209.0	211.7	r 212.3	213.0	215.5	218.4	220.0
Lumber and wood products, excluding millwork	288.8	288.5	290.5	288.1	294.5	294.6	288.3	287.2	282.5	r 283.4	288.6	298.7	313.5	316.4
Steel mill products, including fabricated wire products	349.4	350.5	352.2	352.1	349.9	348.4	348.1	347.8	349.1	r 348.5	344.8	343.1	350.5	348.8
Finished steel mill products, excluding fabricated wire products	348.4	349.2	351.0	350.9	348.6	347.7	347.3	346.9	348.6	r 348.0	344.0	342.1	350.5	348.7
Finished steel mill products, including fabricated wire products	348.1	349.2	351.0	350.9	348.6	347.0	346.7	346.3	347.8	r 347.2	343.3	341.5	349.1	347.4
Special metals and metal products	286.7	285.3	285.6	286.3	285.2	285.7	285.8	284.0	289.5	r 288.9	289.2	289.7	292.3	291.8
Fabricated metal products	292.0	289.9	290.8	292.6	292.8	292.0	291.9	292.9	293.0	r 292.5	294.0	293.9	294.2	295.3
Copper and copper products	185.6	190.8	191.6	193.0	179.7	179.2	179.8	181.0	178.8	r 181.2	182.1	190.5	201.6	199.0
Machinery and motive products	272.1	268.5	269.6	270.7	271.7	272.8	273.3	270.7	276.4	r 277.6	277.6	277.9	278.5	278.6
Machinery and equipment, except electrical	306.3	303.1	304.6	305.7	306.2	307.6	308.1	308.6	309.4	r 310.0	310.3	311.1	311.6	312.1
Agricultural machinery, including tractors	322.8	318.4	319.0	319.9	321.3	321.8	322.8	325.5	330.6	r 332.2	333.7	336.0	337.1	337.4
Metalworking machinery	350.4	346.4	348.8	349.3	350.1	352.6	353.1	353.5	354.1	r 354.2	354.2	354.8	355.9	355.7
Numerically controlled machine tools (Dec. 1971 = 100)	239.8	239.9	239.9	239.9	240.0	239.2	239.2	239.4	239.4	r 239.4	239.8	238.0	238.7	236.8
Total tractors	354.7	349.1	352.4	353.6	354.1	354.8	355.5	359.6	361.4	r 361.4	363.2	365.3	365.6	365.7
Agricultural machinery and equipment less parts	313.5	309.7	310.3	311.0	312.2	312.8	313.6	315.8	320.1	r 321.5	323.1	325.1	326.1	326.4
Farm and garden tractors less parts	327.4	323.5	323.5	325.0	325.8	325.4	326.0	333.0	336.1	r 336.1	339.1	342.2	342.2	342.2
Agricultural machinery, excluding tractors less parts	319.3	314.6	315.6	316.1	317.9	319.1	320.4	319.6	326.4	r 329.3	329.6	331.2	333.3	333.7
Construction materials	288.0	287.5	288.2	288.2	289.5	289.2	288.3	288.4	288.0	r 287.8	288.3	290.0	294.4	294.9

¹ Data for November 1982 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r = revised.

26. Producer Price Indexes, by durability of product

[1967=100]

Commodity grouping	Annual average 1982	1982										1983		
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov. ¹	Dec.	Jan.	Feb.	Mar.
Total durable goods	279.0	277.4	278.1	278.5	278.3	278.9	278.8	278.6	281.2	281.2	282.0	282.8	285.2	285.1
Total nondurable goods	315.3	314.2	313.6	314.5	316.0	317.6	317.1	315.7	314.3	r 315.3	315.1	313.4	313.5	312.4
Total manufactures	292.7	291.4	291.1	291.3	292.4	293.7	293.8	292.9	293.8	r 293.9	294.1	293.7	294.1	293.0
Durable	279.9	277.8	278.7	279.2	279.3	279.9	279.8	279.6	282.3	r 282.4	283.2	283.9	286.1	285.8
Nondurable	306.4	305.9	304.1	304.0	306.3	308.5	308.6	307.1	306.0	r 306.1	305.6	303.9	302.3	300.5
Total raw or slightly processed goods	331.3	329.7	331.9	335.1	333.4	333.2	331.1	329.9	327.9	r 330.9	331.5	330.3	336.2	338.1
Durable	234.1	250.1	245.3	239.7	225.4	225.3	225.0	226.2	224.2	r 219.2	218.2	225.2	236.3	244.3
Nondurable	337.4	334.5	337.2	341.1	340.3	340.1	337.9	336.5	334.5	r 338.1	338.8	337.0	342.5	343.9

¹ Data for November 1982 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r = revised.

PRODUCTIVITY DATA

PRODUCTIVITY DATA are compiled by the Bureau of Labor Statistics from establishment data and from 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 28 through 31, 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 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 1982 issue of the *Review*, all of the productivity and cost measures contained in these tables are based on revised output and compensation measures released by the Bureau of Economic Analysis in July as part of the regular revision cycle of the National Income and Product Accounts. Measures of labor input have been revised to reflect results of the 1980 census, and seasonal factors have been recomputed for use in the preparation of quarterly measures. The word "private" is no longer being used as part of the series title of one of the two business sector measures prepared by BLS; no change has been made in the definition or content of the measures as a result of this change.

28. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years, 1950-82

[1977=100]

Item	1950	1955	1960	1965	1970	1975	1976	1977	1978	1979	1980	1981	1982
Business sector:													
Output per hour of all persons	50.4	58.3	65.2	78.3	86.2	94.5	97.6	100.0	100.6	99.6	98.9	100.7	101.0
Compensation per hour	20.0	26.4	33.9	41.7	58.2	85.5	92.9	100.0	108.6	119.1	131.4	144.1	154.5
Real compensation per hour	50.5	59.6	69.5	80.1	90.8	96.3	98.9	100.0	100.9	99.4	96.7	96.0	97.0
Unit labor cost	39.7	45.2	52.0	53.3	67.5	90.5	95.1	100.0	108.0	119.5	132.9	143.1	152.9
Unit nonlabor payments	43.4	47.6	50.6	57.6	63.2	90.4	94.0	100.0	106.7	112.8	119.3	135.2	138.7
Implicit price deflator	41.0	46.0	51.6	54.7	66.0	90.5	94.7	100.0	107.5	117.2	128.3	140.4	148.1
Nonfarm business sector:													
Output per hour of all persons	56.3	62.8	68.3	80.5	86.8	94.7	97.8	100.0	100.6	99.3	98.5	99.9	100.0
Compensation per hour	21.8	28.3	35.7	42.8	58.7	86.0	93.0	100.0	108.6	118.8	130.9	143.6	154.0
Real compensation per hour	55.0	64.0	73.0	82.2	91.5	96.8	98.0	100.0	100.9	99.2	96.3	95.7	96.7
Unit labor cost	38.8	45.0	52.2	53.2	67.6	90.8	95.1	100.0	108.0	119.6	133.0	143.8	154.0
Unit nonlabor payments	42.7	47.8	50.4	58.0	63.7	88.5	93.5	100.0	105.3	110.3	119.1	134.8	139.0
Implicit price deflator	40.1	46.0	51.6	54.8	66.3	90.0	94.6	100.0	107.1	116.5	128.3	140.8	149.0
Nonfinancial corporations:													
Output per hour of all employees	(¹)	(¹)	68.0	81.9	87.4	95.5	98.2	100.0	100.9	100.7	100.3	102.0	103.0
Compensation per hour	(¹)	(¹)	37.0	43.9	59.4	86.1	92.9	100.0	108.5	118.7	130.9	143.5	154.1
Real compensation per hour	(¹)	(¹)	75.8	84.3	92.7	96.9	98.9	100.0	100.8	99.1	96.2	95.6	96.8
Unit labor cost	(¹)	(¹)	54.4	53.5	68.0	90.2	94.6	100.0	107.5	117.8	130.5	140.6	149.6
Unit nonlabor payments	(¹)	(¹)	54.6	60.8	63.1	90.8	95.0	100.0	104.2	106.9	117.7	134.8	140.5
Implicit price deflator	(¹)	(¹)	54.5	56.1	66.3	90.4	94.7	100.0	106.4	114.1	126.1	138.6	146.5
Manufacturing:													
Output per hour of all persons	49.4	56.4	60.0	74.5	79.1	93.4	97.5	100.0	100.9	101.5	101.7	104.5	103.5
Compensation per hour	21.5	28.8	36.7	42.8	57.6	85.4	92.3	100.0	108.3	118.9	132.8	146.4	158.8
Real compensation per hour	54.0	65.1	75.1	82.3	89.8	96.2	98.3	100.0	100.6	99.2	97.7	97.5	99.7
Unit labor cost	43.4	51.0	61.1	57.5	72.7	91.5	94.6	100.0	107.4	117.1	130.6	140.0	153.4
Unit nonlabor payments	54.3	58.5	61.1	69.3	65.0	87.3	93.7	100.0	102.5	99.9	97.1	108.8	(¹)
Implicit price deflator	46.6	53.2	61.1	61.0	70.5	90.3	94.4	100.0	106.0	112.0	120.8	130.8	(¹)

¹ Not available.

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

[1977 = 100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	II 1981 to III 1981	III 1981 to IV 1981	IV 1981 to I 1982	I 1982 to II 1982	II 1982 to III 1982	III 1982 to IV 1982	III 1980 to III 1981	IV 1980 to IV 1981	I 1981 to I 1982	II 1981 to II 1982	III 1981 to III 1982	IV 1981 to IV 1982
	Business sector:											
Output per hour of all persons	1.1	-2.9	-1.0	1.4	3.6	4.1	2.2	0.9	-0.7	-0.4	0.2	2.0
Compensation per hour	9.0	7.4	7.3	6.9	6.1	5.6	9.4	8.9	7.8	7.6	6.9	6.5
Real compensation per hour	-2.6	-0.4	3.9	2.2	-1.4	2.9	-1.3	-0.6	0.3	0.8	1.1	1.9
Unit labor costs	7.8	10.6	8.4	5.5	2.4	1.4	7.1	7.9	8.6	8.1	6.7	4.4
Unit nonlabor payments	12.5	2.9	-5.4	1.7	8.9	5.4	13.9	11.0	3.5	2.7	1.9	2.5
Implicit price deflator	9.3	8.0	3.8	4.3	4.4	2.7	9.2	8.9	6.9	6.3	5.1	3.8
Nonfarm business sector:												
Output per hour of all persons	-0.3	-3.5	0.6	0.8	3.5	2.0	1.6	-0.1	-1.1	-0.6	0.3	1.7
Compensation per hour	9.0	7.3	7.7	6.1	6.6	5.6	9.4	8.8	7.8	7.5	6.9	6.5
Real compensation per hour	-2.6	-0.5	4.3	1.4	-0.9	2.9	-1.2	-0.6	0.3	0.6	1.1	1.9
Unit labor costs	9.3	11.2	7.1	5.2	3.1	3.5	7.7	8.9	9.0	8.2	6.6	4.7
Unit nonlabor payments	12.1	5.1	-4.6	1.3	8.9	6.1	13.6	11.2	4.0	3.3	2.6	2.8
Implicit price deflator	10.2	9.2	3.3	4.0	4.9	4.3	9.6	9.6	7.4	6.6	5.3	4.1
Nonfinancial corporations:												
Output per hour of all employees	0.2	-2.4	0.3	2.7	4.6	(¹)	1.6	0.5	-0.6	0.2	1.3	(¹)
Compensation per hour	8.4	8.2	8.4	6.2	5.9	(¹)	9.2	8.9	8.0	7.8	7.2	(¹)
Real compensation per hour	-3.1	0.3	5.0	1.6	-1.6	(¹)	-1.4	-0.5	0.5	0.9	1.3	(¹)
Total unit costs	8.6	12.8	7.4	5.4	2.5	(¹)	8.9	9.8	9.7	8.5	7.0	(¹)
Unit labor costs	8.2	10.9	8.1	3.4	1.2	(¹)	7.5	8.4	8.6	7.6	5.8	(¹)
Unit nonlabor costs	9.8	17.8	5.7	10.7	5.9	(¹)	12.9	13.4	12.8	10.9	9.9	(¹)
Unit profits	28.4	-25.9	-39.4	-16.7	40.8	(¹)	19.7	7.9	-17.8	-16.7	-14.8	(¹)
Implicit price deflator	10.2	8.9	3.0	3.8	4.7	(¹)	9.7	9.6	7.3	6.4	5.1	(¹)
Manufacturing:												
Output per hour of all persons	-0.1	-8.2	-2.4	0.8	7.3	0.5	4.7	-0.8	-2.9	-2.5	-0.8	1.5
Compensation per hour	6.8	9.6	11.1	7.8	6.2	4.5	8.9	8.9	8.5	8.8	8.7	7.4
Real compensation per hour	-4.6	1.6	7.6	3.1	-1.3	1.9	-1.7	-0.6	1.0	1.8	2.7	2.8
Unit labor costs	6.8	19.4	13.9	6.9	-1.0	3.9	4.0	9.8	11.7	11.6	9.5	5.8

¹Not available.

r= revised.

WAGE AND COMPENSATION DATA

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

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

Definitions

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

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

Data on negotiated wage changes apply to private nonfarm industry collective bargaining agreements covering 1,000 workers or more. Data on compensation changes apply only to those agreements covering 5,000 workers or more. *First-year* wage or compensation changes refer to average negotiated changes for workers covered by settlements reached in the period and implemented within the first 12 months after the effective date of the agreement. *Changes over the life*

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

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

Notes on the data

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

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

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

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

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

32. Employment Cost Index, total compensation, by occupation and industry group

[June 1981 = 100]

Series	1980	1981				1982				Percent change	
		3 months ended		12 months ended		3 months ended		12 months ended		December 1982	
		Dec.	March	June	Sept.	Dec.	March	June	Sept.	Dec.	
Civilian nonfarm workers¹	—	—	100.0	102.6	104.5	106.3	107.5	110.1	111.4	1.2	6.6
Workers, by occupational group											
White-collar workers	—	—	100.0	102.7	104.9	106.5	107.7	110.7	111.9	1.1	6.7
Blue-collar workers	—	—	100.0	102.3	104.1	105.7	107.1	109.2	110.5	1.2	6.1
Service workers	—	—	100.0	102.8	104.2	107.2	108.3	110.8	112.4	1.4	7.9
Workers, by industry division											
Manufacturing	—	—	100.0	102.1	104.0	106.0	107.2	109.3	110.4	1.0	6.2
Nonmanufacturing	—	—	100.0	102.8	104.8	106.4	107.7	110.5	111.8	1.2	6.7
Services	—	—	100.0	104.4	107.1	108.2	109.2	113.5	115.0	1.3	7.4
Public administration ²	—	—	100.0	104.3	106.0	108.1	109.1	112.8	113.6	.7	7.2
Private nonfarm workers	94.7	98.1	100.0	102.0	104.0	105.8	107.2	109.3	110.7	1.3	6.4
Workers, by occupational group											
White-collar workers	94.5	98.3	100.0	101.8	104.0	105.8	107.2	109.5	110.8	1.2	6.5
Blue-collar workers	94.9	97.8	100.0	102.2	104.0	105.6	107.0	109.0	110.3	1.2	6.1
Service workers	94.3	99.3	100.0	101.9	103.1	106.7	107.9	109.6	111.8	2.0	8.4
Workers, by industry division											
Manufacturing	94.7	98.0	100.0	102.1	104.0	106.0	107.2	109.3	110.4	1.0	6.2
Nonmanufacturing	94.7	98.2	100.0	102.0	103.9	105.7	107.1	109.3	110.8	1.4	6.6
State and local government workers	—	—	100.0	105.3	107.4	108.8	109.3	114.3	115.1	.7	7.2
Workers, by occupational group											
White-collar workers	—	—	100.0	105.7	107.8	109.1	109.5	114.9	115.8	.8	7.4
Blue-collar workers	—	—	100.0	104.2	105.9	108.2	108.9	112.7	113.0	.3	6.7
Workers, by industry division											
Services	—	—	100.0	105.8	107.9	109.0	109.4	114.9	115.9	.9	7.4
Schools	—	—	100.0	106.0	107.9	108.9	109.1	114.8	115.8	.9	7.3
Elementary and secondary	—	—	100.0	106.3	108.3	109.3	109.5	115.6	116.6	.9	7.7
Hospitals and other services ³	—	—	100.0	105.0	107.8	109.5	110.3	115.3	116.0	.6	7.6
Public administration ²	—	—	100.0	104.3	106.0	108.1	109.1	112.8	113.6	.7	7.2

¹Excludes household and Federal workers.

²Consists of legislative, judicial, administrative, and regulatory activities.

³Includes, for example, library, social, and health services.

NOTE: Dashes indicate data not available.

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

[June 1981 = 100]

Series	1980	1981				1982				Percent change		
		Dec.	March	June	Sept.	Dec.	March	June	Sept.	Dec.	3 months ended	12 months ended
											December 1982	
Civilian nonfarm workers¹	—	—	100.0	102.5	104.4	106.3	107.3	109.7	110.9	1.1	6.2	
Workers, by occupational group												
White-collar workers	—	—	100.0	102.6	104.7	106.7	107.6	110.4	111.4	.9	6.4	
Blue-collar workers	—	—	100.0	102.4	104.0	105.5	106.7	108.6	109.8	1.1	5.6	
Service workers	—	—	100.0	102.5	103.6	106.8	107.9	110.1	111.8	1.5	7.9	
Workers, by industry division												
Manufacturing	—	—	100.0	102.1	104.0	105.9	107.0	108.8	109.8	.9	5.6	
Nonmanufacturing	—	—	100.0	102.7	104.5	106.5	107.5	110.1	111.3	1.1	6.5	
Services	—	—	100.0	104.4	106.6	108.6	109.5	113.2	114.4	1.1	7.3	
Public administration ²	—	—	100.0	103.8	105.5	107.5	108.4	111.9	112.6	.6	6.7	
Private nonfarm workers	95.4	98.0	100.0	102.0	103.8	105.9	107.1	109.0	110.3	1.2	6.3	
Workers, by occupational group												
White-collar workers	95.2	98.1	100.0	101.8	103.9	106.2	107.3	109.4	110.6	1.1	6.4	
Professional and technical workers	95.3	98.2	100.0	103.3	105.5	108.0	109.4	111.8	112.9	1.0	7.0	
Managers and administrators	94.7	98.6	100.0	101.6	102.8	105.8	107.2	108.5	109.3	.7	6.3	
Salesworkers	94.8	96.2	100.0	98.0	101.9	102.2	101.8	104.5	106.2	1.6	4.2	
Clerical workers	95.7	98.6	100.0	102.7	104.2	107.0	108.3	110.3	111.6	1.2	7.1	
Blue-collar workers	95.7	97.7	100.0	102.3	103.9	105.4	106.6	108.5	109.7	1.1	5.6	
Craft and kindred workers	96.1	97.8	100.0	102.9	104.3	106.2	107.6	109.6	111.2	1.5	6.6	
Operatives, except transport	95.5	97.8	100.0	102.1	104.1	105.4	106.6	108.3	109.3	.9	5.0	
Transport equipment operatives	95.3	96.8	100.0	101.0	102.7	103.2	104.1	106.0	106.9	.8	4.1	
Nonfarm laborers	95.7	97.5	100.0	101.5	103.3	104.1	105.1	106.5	107.8	1.2	4.4	
Service workers	94.8	99.2	100.0	101.8	102.7	106.7	107.9	109.3	111.4	1.9	8.5	
Workers, by industry division												
Manufacturing	95.7	97.9	100.0	102.1	104.0	105.9	107.0	108.8	109.8	.9	5.6	
Durables	95.7	97.9	100.0	102.1	104.5	106.3	107.4	109.0	110.3	1.2	5.6	
Nondurables	95.7	97.8	100.0	102.0	103.1	105.3	106.3	108.5	109.1	.6	5.8	
Nonmanufacturing	95.2	98.1	100.0	102.0	103.8	105.9	107.1	109.1	110.5	1.3	6.5	
Construction	95.9	97.6	100.0	103.0	104.3	105.9	107.3	109.1	109.7	.6	5.2	
Transportation and public utilities	95.6	97.7	100.0	102.0	103.6	105.7	106.9	109.5	111.1	1.5	7.2	
Wholesale and retail trade	95.1	98.2	100.0	101.3	102.3	103.9	105.8	106.5	107.2	.7	4.8	
Wholesale trade	95.9	98.5	100.0	102.0	103.4	106.3	108.9	109.0	109.8	.7	6.2	
Retail trade	94.8	98.1	100.0	101.0	101.9	103.0	104.5	105.5	106.1	.6	4.1	
Finance, insurance, and real estate	93.1	95.7	100.0	98.3	102.3	103.7	102.4	106.1	109.0	2.7	6.5	
Services	95.7	99.6	100.0	103.6	105.8	108.8	110.0	112.5	114.3	1.6	8.0	
State and local government workers	—	—	100.0	105.0	107.0	108.2	108.7	113.5	114.0	.4	6.5	
Workers, by occupational group												
White-collar workers	—	—	100.0	105.4	107.5	108.5	108.9	114.2	114.6	.4	6.6	
Blue-collar workers	—	—	100.0	103.9	105.5	107.5	107.9	111.5	112.0	.4	6.2	
Workers, by industry division												
Services	—	—	100.0	105.5	107.6	108.4	108.8	114.2	114.6	.4	6.5	
Schools	—	—	100.0	105.7	107.7	108.3	108.5	114.2	114.5	.3	6.3	
Elementary and secondary	—	—	100.0	106.0	107.9	108.7	108.8	114.9	115.1	.2	6.7	
Hospitals and other services ³	—	—	100.0	104.6	107.3	108.8	109.5	114.3	114.9	.5	7.1	
Public administration ²	—	—	100.0	103.8	105.5	107.5	108.4	111.9	112.6	.6	6.7	

¹Excludes household and Federal workers.²Consists of legislative, judicial, administrative, and regulatory activities.³Includes, for example, library, social, and health services.

NOTE: Dashes indicate data not available.

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

[June 1981 = 100]

Series	1980	1981				1982				Percent change		
		Dec.	March	June	Sept.	Dec.	March	June	Sept.	Dec.	3 months ended	12 months ended
											December 1982	
COMPENSATION												
Workers, by bargaining status ¹												
Union	94.7	97.6	100.0	102.5	104.8	106.5	108.4	110.6	112.3	1.5	7.2	
Manufacturing	—	—	100.0	102.3	104.6	106.3	108.0	110.3	111.8	1.4	6.9	
Nonmanufacturing	—	—	100.0	102.7	105.0	106.8	108.7	111.0	112.8	1.6	7.4	
Nonunion	94.6	98.4	100.0	101.7	103.5	105.3	106.5	108.5	109.7	1.1	6.0	
Manufacturing	—	—	100.0	101.8	103.5	105.7	106.6	108.4	109.2	.7	5.5	
Nonmanufacturing	—	—	100.0	101.7	103.5	105.2	106.4	108.6	109.9	1.2	6.2	
Workers, by area size ¹												
Metropolitan areas	94.7	98.1	100.0	102.1	104.1	105.7	107.2	109.4	110.9	1.4	6.5	
Other areas	94.2	98.1	100.0	101.8	103.2	106.2	107.0	108.6	109.1	.5	5.7	
WAGES AND SALARIES												
Workers, by bargaining status ¹												
Union	95.8	97.4	100.0	102.7	105.0	106.5	108.1	110.3	111.8	1.4	6.5	
Manufacturing	96.1	97.7	100.0	102.6	104.7	105.9	107.3	109.5	110.8	1.2	5.8	
Nonmanufacturing	95.5	97.1	100.0	102.8	105.2	107.0	108.8	111.1	112.7	1.4	7.1	
Nonunion	95.1	98.2	100.0	101.6	103.2	105.6	106.5	108.3	109.5	1.1	6.1	
Manufacturing	95.4	97.9	100.0	101.7	103.3	105.9	106.7	108.2	109.1	.8	5.6	
Nonmanufacturing	95.0	98.3	100.0	101.6	103.2	105.5	106.4	108.3	109.6	1.2	6.2	
Workers, by region ¹												
Northeast	96.0	98.3	100.0	101.7	104.4	106.1	106.7	109.7	111.5	1.6	6.8	
South	94.9	98.0	100.0	101.9	102.8	105.7	107.4	108.8	109.8	.9	6.8	
North Central	95.3	98.1	100.0	101.6	103.3	104.7	106.1	107.6	108.6	.9	5.1	
West	95.3	97.9	100.0	103.2	105.1	107.9	108.6	110.7	112.0	1.2	6.6	
Workers, by area size ¹												
Metropolitan areas	95.4	97.9	100.0	102.1	104.0	105.9	107.1	109.1	110.5	1.3	6.3	
Other areas	95.1	98.3	100.0	101.8	103.1	106.0	106.8	108.3	108.8	.5	5.5	

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

35. Wage and compensation change, major collective bargaining settlements, 1978 to date

[In percent]

Measure	Annual average					Quarterly average							
	1978	1979	1980	1981	1982	1981				1982			
						I	II	III	IV	I	II	III	IV
Total compensation changes covering 5,000 workers or more, all industries:													
First year of contract	8.3	9.0	10.4	10.2	3.2	7.7	11.6	10.5	11.0	1.9	2.6	6.2	3.0
Annual rate over life of contract . .	6.3	6.6	7.1	8.3	2.7	7.2	10.8	8.1	5.8	1.2	2.0	4.7	4.9
Wage rate changes covering at least 1,000 workers, all industries:													
First year of contract	7.6	7.4	9.5	9.8	3.8	7.1	11.8	10.8	9.0	3.0	3.4	5.4	3.8
Annual rate over life of contract . .	6.4	6.0	7.1	7.9	3.6	6.2	9.7	8.7	5.7	2.8	3.2	4.5	4.8
Manufacturing:													
First year of contract	8.3	6.9	7.4	7.2	2.8	6.4	8.2	9.0	6.6	2.5	1.8	5.1	4.1
Annual rate over life of contract . .	6.6	5.4	5.4	6.1	2.6	5.5	6.7	7.5	5.4	2.7	1.7	3.9	4.5
Nonmanufacturing (excluding construction):													
First year of contract	8.0	7.6	9.5	9.8	4.3	8.0	11.8	8.6	9.6	2.7	6.6	5.5	3.6
Annual rate over life of contract . .	6.5	6.2	6.6	7.3	4.1	7.3	9.1	7.2	5.6	2.1	6.1	4.8	5.2
Construction:													
First year of contract	6.5	8.8	13.6	13.5	6.5	11.4	12.9	16.4	11.4	8.6	6.2	6.3	3.4
Annual rate over life of contract . .	6.2	8.3	11.5	11.3	6.3	10.3	11.1	12.4	11.7	8.2	6.3	5.9	2.9

36. Effective wage adjustments in collective bargaining units covering 1,000 workers or more, 1978 to date

Measure	Year					Year and quarter							
	1978	1979	1980	1981	1982	1981				1982			
						I	II	III	IV	I	II	III	IV
Average percent adjustment (including no change):													
All industries	8.2	9.1	9.9	9.5	6.8	1.7	3.2	3.3	1.5	1.0	2.0	2.4	1.3
Manufacturing	8.6	9.6	10.2	9.4	5.2	2.3	2.4	3.1	1.9	.9	1.0	1.7	1.5
Nonmanufacturing	7.9	8.8	9.7	9.5	7.9	1.2	3.8	3.4	1.1	1.1	2.7	2.9	1.2
From settlements reached in period	2.0	3.0	3.6	2.5	1.7	.4	1.1	.5	.4	.2	.4	.5	.6
Deferred from settlements reached in earlier period	3.7	3.0	3.5	3.8	3.6	.5	1.4	1.5	.4	.6	1.4	1.3	.4
From cost-of-living clauses	2.4	3.1	2.8	3.2	1.4	.7	.7	1.2	.6	.3	.2	.6	.3
Total number of workers receiving wage change (in thousands) ¹	—	—	—	8,648	7,852	3,855	4,701	4,364	3,225	2,878	3,423	3,760	3,441
From settlements reached in period	—	—	—	2,270	1,907	579	909	540	604	204	511	620	825
Deferred from settlements reached in earlier period	—	—	—	6,267	4,846	888	2,055	3,023	882	1,001	1,594	2,400	860
From cost-of-living clauses	—	—	—	4,593	3,830	2,639	2,669	2,934	2,179	1,920	1,568	2,251	1,970
Number of workers receiving no adjustments (in thousands)	—	—	—	145	483	4,937	4,092	4,428	5,568	5,457	4,912	4,575	4,895

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

WORK STOPPAGE DATA

WORK STOPPAGES include all known strikes or lockouts involving 1,000 workers or more and lasting a full shift or longer. Data are based largely on newspaper accounts and cover all workers idle one shift or more in establishments directly involved in a stoppage. They do not measure the indirect or secondary effect on other establishments whose employees are idle owing to material or service shortages.

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

37. Work stoppages involving 1,000 workers or more, 1947 to date						
Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (in thousands)	In effect during month (in thousands)	Number (in thousands)	Percent of estimated working time
1947	270		1,629		25,720	
1948	245		1,435		26,127	.22
1949	262		2,537		43,420	.38
1950	424		1,698		30,390	.26
1951	415		1,462		15,070	.12
1952	470		2,746		48,820	.38
1953	437		1,623		18,130	.14
1954	265		1,075		16,630	.13
1955	363		2,055		21,180	.16
1956	287		1,370		26,840	.20
1957	279		887		10,340	.07
1958	332		1,587		17,900	.13
1959	245		1,381		60,850	.43
1960	222		896		13,260	.09
1961	195		1,031		10,140	.07
1962	211		793		11,760	.08
1963	181		512		10,020	.07
1964	246		1,183		16,220	.11
1965	268		999		15,140	.10
1966	321		1,300		16,000	.10
1967	381		2,192		31,320	.18
1968	392		1,855		35,567	.20
1969	412		1,576		29,397	.16
1970	381		2,468		52,761	.29
1971	298		2,516		35,538	.19
1972	250		975		16,764	.09
1973	317		1,400		16,260	.08
1974	424		1,796		31,809	.16
1975	235		965		17,563	.09
1976	231		1,519		23,962	.12
1977	298		1,212		21,258	.10
1978	219		1,006		23,774	.11
1979	235		1,021		20,409	.09
1980	187		795		20,844	.09
1981	145		729		16,908	.07
1982	96		656		9,061	.04
1982	January	2	6.1	11.4	202.8	.01
	February	3	3.9	15.3	241.1	.01
	March	4	13.3	26.1	357.0	.02
1983 ^p	January	1	1.6	38.0	794.8	.04
	February	5	14.0	50.4	844.4	.05
	March	2	2.0	46.4	991.6	.05

p=preliminary.

r=revised.

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SALES PUBLICATIONS

BLS Bulletins

Bargaining Calendar, 1983. Bulletin 2165, 61 pp. \$5 (GPO Stock No. 029-001-02748-6). Presents information on anticipated labor-management contract developments in 1983. The information—identified by company and union—relates to major bargaining situations (covering at least 1,000 workers) in which contracts expire or are subject to reopening, deferred wage changes come due, or wages are subject to change under cost-of-living adjustment clauses. Includes an analysis of 1983 bargaining that first appeared in the January 1983 issue of the *Monthly Labor Review*.

Occupational Injuries and Illnesses in the United States by Industry, 1981. Bulletin 2164, 48 pp., \$4.75 (GPO Stock No. 029-001-02746-0). Contains 1980 and 1981 data by industry on occupational injuries, illnesses, and fatalities in private, non-farm establishments.

Area Wage Survey Bulletins

These bulletins cover office, professional, technical, maintenance, custodial, and material movement occupations in major metropolitan areas. The annual series of 70 is available by subscription for \$115 per year. Individual area bulletins are also available separately. The following were published in March:

Anaheim-Santa Ana-Garden Grove, California, Metropolitan Area, October 1982. Bulletin 3015-69, 36 pp., \$4.50 (GPO Stock No. 029-001-90190-9).

Dallas-Fort Worth, Texas, Metropolitan Area, December 1982. Bulletin 3015-65, 39 pp., \$4.50 (GPO Stock No. 029-001-90186-1).

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These studies include results from the latest BLS survey of wages and supplemental benefits, with detailed occupational data for the Nation, regions, and selected areas (where available). Data are useful for wage and salary administration, union contract negotiation, arbitration, and Government policy considerations.

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FREE PUBLICATIONS

Area Wage Survey Summaries

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Cedar Rapids, Iowa, January 1983. 3 pp.

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