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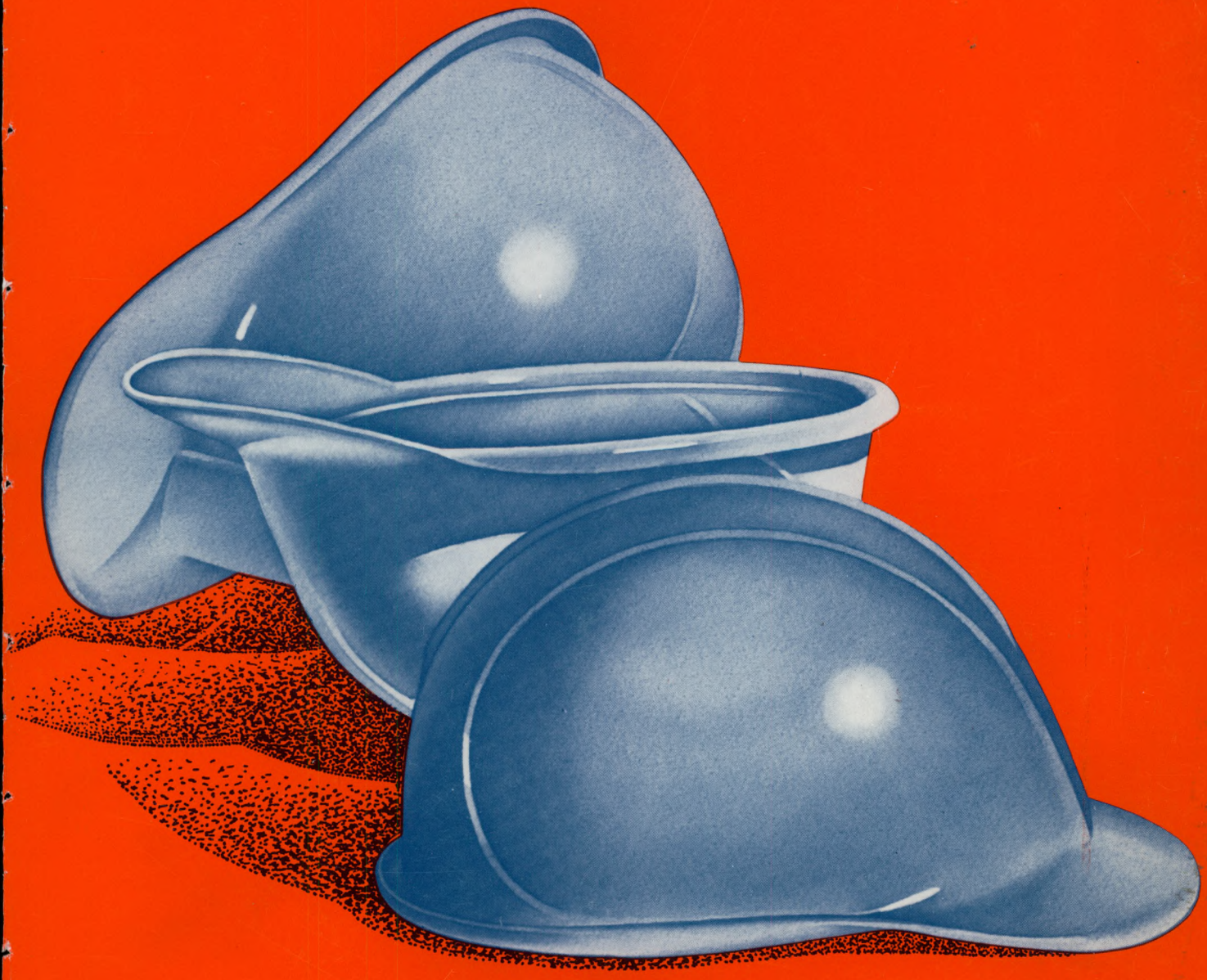

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March cover:

Philip Hays' painting for *Images of Labor*, a book of 32 original works illustrating quotations from labor history, commissioned by District 1199, National Union of Hospital and Health Care Employees, as part of its Bread and Roses cultural program. The book, including works by Milton Glaser, Judy Chicago, Jacob Lawrence, Alice Neel, and Ralph Fasanella, will be published next month by The Pilgrim Press. An exhibition of the 32 works of art opens next month at Gallery 1199 in New York City, prior to a 2-year national tour sponsored by Smithsonian Institution Traveling Exhibition Service. The National Endowment for the Humanities provided major funding for the project.

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MONTHLY LABOR REVIEW

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

Labor Month In Review

RELEASE POLICY. The Office of Federal Statistical Policy and Standards announced adoption of Statistical Policy Directive No. 3, governing compilation and release of Federal economic indicator statistics produced by the Bureau of Labor Statistics and other Federal agencies. The new directive, which replaces and revises two earlier directives, sets policy for timely compilation and release of important economic information and for preventing premature release. Excerpts:

Prompt release. The shortest practicable interval should exist between the date or period to which the data refer and the date when compilation is completed. Prompt public release of the figures should be made after compilation. The goal is to accomplish compilation and release to the public within 20 working days or less for series that are issued quarterly or more frequently.

Release schedule. Agencies should schedule release dates for series that are issued quarterly or more frequently that can be met and that will also insure prompt release of the series as specified in this directive. The schedule of release dates established by agencies will be issued each month by the Office of Federal Statistical Policy and Standards and will appear in the Office's publication, *Statistical Reporter.*

Agencies should establish and maintain one or two designated times of day for the release of their principal economic indicators. Each indicator should be released consistently at one of the designated times and changes to a new designated release time should be announced 30 days in advance.

Release procedure. Initial release of principal economic indicators should be made by the statistical agency in a press release or other type of printed report. A press release should be issued if it would speed up the release of data. A news conference may be scheduled to permit discussion of important technical, features of the data being released.

Except for authorized distribution of principal economic indicators described in this paragraph, there shall be no provision of information or data estimates to official public release. The President will receive pre-released information when available through the Chairman of the Council of Economic Advisers. Principal economic indicators information should be made available to principal economic policymakers at the same time a press release is provided to the press. The principal economic policymakers who may receive the information are the Chairman of the Council of Economic Advisers, the Chairman of the Board of Governors of the Federal Reserve System, the Director of the Office of Management and Budget, the Director of the Council on Wage and Price Stability, the Secretary of the Treasury, the Secretary of Commerce, and the Secretary of Labor.

Each statistical agency is responsible for establishing procedures to assure that there will be no premature release of information or data estimates during the period of time required for preparation and duplication of materials used for the public release. This includes the protection of public use data banks which should not receive data until officially released. All employees of the Executive Branch who receive pre-release distribution of information and data estimates as authorized above are responsible to assure that there will be no release prior to the public release. Employees of the Executive Branch should also observe a 1-hour period after the release of data by the statistical agency before making public commentary, except for necessary technical explanation by appropriate staff of the issuing Department.

Preliminary estimates and revisions. Decisions on the release of principal economic indicators may require balancing timeliness against accuracy and also controlling frequency of revisions. It is not intended that vital information important for making current policy decisions be withheld merely to reduce frequency of revisions, nor that stringent accuracy considerations result in delaying the issuance of important statistical information.

In general, not more than two estimates for a principal economic indicator should be issued within 60 days after the end of the reference period.

Preliminary estimates for series that represent principal aggregates should not be issued until the agency is confident that the difference between preliminary and final figures will be small relative to average period-to-period change.

Full text of the directive appears in the Federal Register for January 14, 1981, pages 3253–54. □

Publications awards

The *Monthly Labor Review's* special issue on immigration (October 1980) has won an award of merit in the 1980 competition sponsored by the Washington, D.C., chapter of the Society for Technical Communication. More than 250 publications of Government agencies, associations, and corporations were entered in the contest.

Another BLS periodical, *Occupational Outlook Quarterly,* also received a merit award in the competition, while the new BLS vocational counseling publication, *Exploring Careers,* won an award of excellence and automatic entry in the Society for Technical Communication's international competition this spring.

Youth labor force activity: alternative surveys compared

Studies of youth labor force activity often yield apparently conflicting results; variations in survey concepts, methodology, and other factors may explain some of the differences, but questions still remain

NORMAN BOWERS

It is generally perceived that a serious youth employment problem exists in this country, especially among young blacks. Quite often this assessment has been based on data from the monthly Current Population Survey (CPS), conducted for the Bureau of Labor Statistics by the Census Bureau.

The CPS uses a national probability sample composed of rotating groups totaling approximately 65,000 households per month. Census Bureau enumerators contact the households in the sample each month and ask a series of structured questions about the labor force status of each member 16 years of age and over during the preceding (or reference) week. The CPS comprises eight independent panels or rotation groups. Each household is interviewed for 4 consecutive months, dropped from the sample for 8 months, interviewed again for 4 months, and finally dropped entirely from the sample. Any responsible household member may supply the CPS labor force information for other eligible persons in the household. And, except for the first and fifth rotation groups, for which a personal visit is the predominant form of data collection, telephone interviews are used extensively. The overall sample size is approximately 135,000 persons, of which about 30,000 are youth age 16 to 24.

Over the past 15 years, additional data from three longitudinal surveys of the labor force status and work experience of youth have become available to analysts. The three youth-specific surveys: the first National Longitudinal Survey, which collected a wide range of data beginning in 1966; the National Longitudinal Study of the High School Class of 1972; and, finally, a new series of National Longitudinal Surveys begun in 1979. As a result of these surveys, particularly the 1966-based survey, a large body of information on the employment problems of young people has been developed.

While much of the longitudinal research has simply

Norman Bowers is an economist in the Office of Current Employment Analysis, Bureau of Labor Statistics. Robert McIntire and Bernard Altschuler of the same office provided portions of the data presented in this article.

confirmed analyses of data from the CPS, some differences between survey measures of current labor force status have also been noted. Among recent studies that called attention to the apparent survey differences are those of Michael Borus, Frank Mott, and Gilbert Nestel; Richard Freeman and James Medoff; and Robert Myer and David Wise.[1] Data from all three longitudinal surveys suggest that youth employment-population ratios are higher than the CPS indicates. Estimates of the unemployment rates for men tend to be little different between the 1966-based longitudinal survey and the CPS; in the class of 1972 survey, estimated unemployment is lower than in the CPS; and unemployment rates for the 1979-based longitudinal survey are much higher than CPS estimates. These inter-survey discrepancies appear to be especially concentrated among youth age 16 to 17, and among those whose major activity is going to school.

Many researchers have suggested that any significant differences between the CPS and the longitudinal studies arise from the fact that the CPS gathers its information from any responsible household member, while the other surveys have relied on the self-response of the young person. As we will see, this hypothesis may be somewhat simplistic. In fact, wherever inter-survey variations appear to be of some importance, they seem to be due to factors other than, or in addition to, the identity of the respondent.

Limitations of the comparisons

A major purpose of this article is to uncover methodological, design, or questionnaire differences among the surveys which may account for the discrepancies in employment and unemployment measures. But even if all the inter-survey differences could be reconciled on methodological grounds, it does not necessarily follow that any particular survey presents the most accurate picture of youth employment. Further, given that one expects some difference in results among surveys, it is important to determine whether the discrepancies are statistically significant. If differences among surveys are frequently not statistically significant, one's confidence in the accumulated body of data might be strengthened.

Comparing labor force estimates from alternative surveys is subject to additional important limitations. For example, the longitudinal surveys were not designed with the intent to test directly the validity of CPS estimates; it is only as a by-product of the surveys that the issue has been raised. Furthermore, the statistical significance of differences among surveys is a function of the magnitude of the differences and the standard errors of the labor force measures. Because standard errors depend in part upon the size of the survey sample, it becomes difficult to detect statistically significant differences between relatively small samples unless the survey measures are widely at odds with each other. Aggregation of data into larger groups of individuals is one way to offset this problem; for example, we might compare employment-population ratios for those age 16 to 24 rather than for more narrowly defined age groups. However, such aggregation frequently obscures the very areas in which the survey differences are most pronounced.

Statistical significance cannot be considered the sole item of interest in survey comparisons. Findings which are not statistically significant might still be important because they suggest a different set of hypotheses about the youth labor market. However, this article touches only briefly on the formidable issue of the substantive nature of the survey differences.

To keep the following analysis manageable, discussion will be limited to employment-population ratios and unemployment rates. We will not address the subject of labor force participation (the ratio of the sum of employment and unemployment to population) or the numbers employed or unemployed. However, it should be noted that because the longitudinal surveys estimate a higher labor force participation than the CPS in all instances, even if there were no differences in unemployment rates between surveys, the estimated *number* of unemployed youth would still be substantially higher in the longitudinal surveys. Analysts might justifiably attach importance to this fact.

The class of 1972

The survey of 1972 high school graduates, supported by the National Center for Education Statistics with data collection and sample design by the Research Triangle Institute, is different in important respects from other data sources on youth. The primary purpose of the survey was to collect data on the educational and vocational activities, aspirations, and attitudes of young people after leaving high school.[2] This purpose in itself may introduce nontrivial methodological differences between the class of 1972 survey and the CPS.

The class of 1972 survey was a stratified two-stage probability sample; high schools were the first-stage units and students, the second-stage units. The initial design called for 1,200 sample schools—with an oversampling of schools in areas with relatively high concentrations of minorities and in low income areas—and up to 18 randomly selected students per school (plus five alternates). The base-year survey, which did not collect labor force information, was conducted in April and May of 1972, with an initial school nonresponse rate of 17 percent. Nonresponding schools were recontacted in 1973, resulting in students from 1,153 of the 1,200 sample schools being selected as potential sample members for the first follow-up survey. The overall sample consisted of about 23,000 persons,

although the analysis presented here is based on a subset of that sample.

The first follow-up survey was conducted largely by a mail questionnaire in late 1973 and early 1974. Subsequent follow-up questionnaires were mailed to sample members in October 1974 and October 1976. Each questionnaire contained a series of questions about the respondent's labor force status; the 1973 and 1976 installments also requested information on labor force activity in October 1972 and October 1975. The use of mail data collection is an important methodological divergence from the CPS, which is based on interviews.

The first class of 1972 follow-up questionnaire (1973) consisted of five major sections. Civilian work experience information was elicited *following* a series of questions probing respondents' future expectations and aspirations and past and current education and training experience. The CPS, in contrast, is primarily concerned with collecting data on current labor force status; only a few basic demographic and income questions are asked before determining labor force status. Again, such variations in survey purpose and questionnaire design alone may result in different responses to seemingly equivalent questions.

A recent analysis has shown that the addition of supplemental questions to the main questionnaire of a survey, and often-subtle differences in interview techniques each had a rather significant impact on the results. For example, analysis of data on crime victimization rates from the National Crime Survey showed that the addition of a series of attitudinal questions—opinions of police, crime trends, and so forth—asked of respondents before eliciting responses to victimization questions led to significantly higher estimates of victimization rates than if the supplemental questions had not been posed.[3] According to the authors of this report, if the explanation for this result is that the additional questions stimulate both recall and the respondents' desire to be accommodating and responsive to what they perceive to be the goal of the survey, incidents—both real and fabricated—may be reported that do not fall within the survey reference period. This leads to an undesirable response bias. Obviously, survey analysts cannot ignore the interaction of questions on respondents when accounting for differences in survey results.

All of the class of 1972 survey data were gathered retrospectively and, in fact, the bulk of the data *relating to 1972* were collected between October 1973 and April 1974. This might lead one to suspect that respondents would have some difficulty in remembering their 1972 activities after a year or more had elapsed. Although the potential for recall error in the measure of labor force activity for October 1972 seems obvious, the direction of the error is not clear *a priori.* However, considerable evidence from a CPS Methods Test conducted between July 1966 and February 1967 indicated that recall biases in labor force classification were "quite high, and at an unacceptable level of quality,"[4] and that they generally resulted in higher estimates of employment and lower estimates of unemployment. Moreover, test results suggested that errors in labor force classification due to recall problems were far more serious than any errors due to nonself reporting.

In addition to procedural differences, there were also important conceptual differences in the labor force questions asked in the 1972-based survey and the CPS. First, the class of 1972 questions were retrospective. Second, the 1972 information referred to an entire month, the CPS examines a reference week. And third, the class of 1972 job-search question did not ask about specific job-seeking activities or about availability for work, unlike the CPS. Such differences might contribute to differing results between the two studies.

The class of 1972 data for 1973 and 1974 were collected over a somewhat shorter period. The labor force questions were also different in that they referred only to the first week in October. Because of fewer recall problems and the use of a specific reference week, one might expect the labor force estimates for 1973 and 1974 to show less divergence from the CPS.

A comparison of CPS measures with the unweighted counts from the 1972-based survey data for males not in school or in the military appeared in a recent paper by Robert Myer and David Wise. (See table 1.) For 1972, the class of 1972 data show both more employment and less unemployment than the CPS, which is to be expected, given possible recall problems and the month-long reference period. Differences by race—especially in employment-population ratios—are reasonably similar. Moreover, the survey differences in 1972 are

Table 1. The labor force activity of male high school graduates: a comparison of the National Longitudinal Study of the High School Class of 1972 and the CPS by race, October 1972–74

Category	Year and survey					
	1972		1973		1974	
	NLS72	CPS	NLS72	CPS	NLS72	CPS
White men						
Labor force participation rate	92.9	91.6	94.6	[1]92.2	96.9	96.0
Employment-population ratio	88.0	[1]81.5	91.4	[1]86.8	91.6	[1]86.6
Unemployment rate	5.4	[1]11.0	3.5	5.9	7.9	9.8
Black and other men						
Labor force participation rate	90.2	88.0	92.8	94.0	96.5	94.7
Employment-population ratio	78.4	68.0	86.0	78.3	84.0	80.5
Unemployment rate	13.0	22.7	7.3	16.7	15.5	15.0

[1] NLS72-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: Data refer to those not currently enrolled in school and not in the military.

SOURCE: Class of 1972 data are from Robert H. Myer and David A. Wise, "High School Preparation and Early Labor Market Experience," paper presented at the National Bureau of Economic Research Conference on Youth Joblessness, May 17 and 18, 1979, table 1, p. 9. CPS data for 1972 are from *Employment of High School Graduates and Dropouts, October 1972,* Special Labor Force Report 155, (Bureau of Labor Statistics, 1973). CPS data for 1973 and 1974 are based on unpublished tabulations from the October surveys.

statistically significant only for the employment ratio and unemployment rate of white males.[5] The survey differences are less—considerably so among black men—in the subsequent 2 years. However, class of 1972 estimates of employment-population ratios are in all cases qualitatively higher than in the CPS.

Myer and Wise, as well as others, have attributed the discrepancy between the surveys to the fact that youth responded for themselves in the class of 1972 survey, whereas any responsible household member (typically an adult) responds to CPS questions.[6] The implication is that substantially more accurate information is obtained from self-respondents. However, there is very little evidence to support this proposition. The fact that the differences, at least for minorities, narrowed over time itself raises questions about the relative importance of the self-response hypothesis. And, previously cited results from the 1966–67 CPS Methods Test also suggest that errors in labor force classification due to respondent recall problems might be far more serious than those caused by nonself reporting.

More likely explanations for the discrepancies lie in the important methodological and conceptual differences between the two surveys: different sampling techniques; the long 1972-based survey mail questionnaire; and the fact that class of 1972 observations for 1972 relied on retrospective questions which referred to an entire month rather than a specific week. Comparisons of class of 1972 measures of youth labor force activity with those from the CPS may in fact be unwarranted; at the very least, great caution is necessary given the large methodological differences between the surveys, and the probable effect of recall bias on 1972-based survey results.

The first National Longitudinal Survey

Survey design. The 1966 National Longitudinal Survey (NLS) survey included roughly 5,000 individuals in each of four age cohorts: young men 14 to 24 in 1966; young women 14 to 24 in 1968; women 30 to 44 in 1967; and men 45 to 59 in 1966. The original samples were drawn by the Census Bureau in a multi-stage screening procedure, with blacks oversampled to ensure a sufficient sample size for analysis. Personal interviews were conducted between 1966 and 1971, and telephone interviews were generally used after 1971. The data underlying the following analysis relate to 1966–73.

The standard set of CPS current labor force status questions was used to determine whether individuals were employed, unemployed, or not in the labor force. Like the class of 1972 study, however, the 1966 survey was designed to obtain information about a much wider range of subjects, including education and training, goals, and knowledge of the world of work. Labor force questions were asked following those on education, and training and educational goals. Again, such design peculiarities may well affect respondents' answers; in particular, the earlier questions could increase recall of labor force experience, although to what degree is uncertain.

In the 1966-based survey, each individual described her or his own labor force status. As in the case of the class of 1972-CPS discrepancies, it has been argued that "a very substantial portion of the CPS-NLS differences in the estimated probability that a teenage male is employed seems to be explicable by the fact that the CPS relies on proxy respondents while the NLS does not."[7]

However, other differences between the two surveys should also be noted. First, the 1966-based survey—properly weighted—was an unbiased sample of the population only at the time of the first interview. Because of attrition, the "best" comparisons with the CPS may be for the first year that data were collected.[8] Second, young people in the Armed Forces or institutionalized at the time the NLS sample was drawn were excluded from the sample forever, but this is not true of the CPS. Third, the earliest NLS relied on personal interviews, whereas telephone interviewing is used extensively in the CPS. And finally, the interviewers for each survey may have had varying experience and training.

Observed measurement differences. Table 2 presents comparable measures of youth labor force activity from the CPS and the first NLS. Both the NLS and CPS data are weighted to national population counts.

The raw data in table 2 have been cited as evidence that there is significantly higher work activity among all youth, and that racial differences among men in the probability of being employed are much smaller than previously estimated in the CPS. Inter-survey variations in male unemployment rates follow no clear pattern, and in all but two instances the differences are not statistically significant.[9] The 1966-based unemployment rates for women are usually higher than the CPS estimates, but rarely are the differences statistically significant. Because the discrepancies between unemployment rates generally do not appear to be meaningful, subsequent analysis concentrates on employment figures. (As noted previously, however, because the NLS estimated labor force participation rate is higher than that from the CPS, the NLS estimated number unemployed also is greater.)

Examination of the employment-population ratios in table 2 confirms the fact that the 1966-based measures are always higher than those calculated from the CPS. In fact, over the entire set of years for which data for men are available, the average differences are statistically significant. The same is true for women, except for whites 18 to 19 years of age and blacks age 20 to 24. Some importance might well be attached to these dif-

Table 2. 1966-based NLS and CPS employment-population ratios and unemployment rates by race, sex, and age, 1966–73

Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
White men				
16 to 17 years:				
1966	48.4	[1]37.6	18.6	[1]10.0
1967	45.6	[1]36.7	18.7	14.4
Average	47.0	[1]37.1	18.6	[1]12.2
18 to 19 years:				
1966	64.1	[1]55.1	9.1	8.8
1967	62.8	56.7	10.3	10.6
1968	64.6	[1]55.7	7.9	7.5
1969	61.2	56.8	12.5	7.6
Average	63.1	[1]55.2	10.0	8.6
20 to 24 years:				
1966	83.1	79.1	3.1	3.8
1967	81.8	78.0	3.2	4.0
1968	79.7	76.5	3.4	4.1
1969	80.8	[1]76.7	4.6	4.5
1970	78.2	75.0	7.4	8.8
1971	80.5	[1]74.1	8.0	9.3
Average	80.5	[1]76.4	5.2	6.0
Black and other men				
16 to 17 years:				
1966	43.0	[1]28.2	26.2	19.8
1967	40.6	[1]26.2	29.8	28.8
Average	41.7	[1]27.2	28.0	24.4
18 to 19 years:				
1966	58.5	47.7	20.9	16.5
1967	59.7	[1]47.0	19.4	21.7
1968	61.7	[1]45.6	13.5	20.3
1969	59.0	52.6	16.9	19.0
Average	59.6	[1]48.4	17.8	19.4
20 to 24 years:				
1966	89.9	82.3	3.5	7.3
1967	84.8	[1]76.9	7.8	10.3
1968	84.5	79.0	3.7	6.7
1969	78.1	78.2	8.7	7.7
1970	75.1	69.0	14.6	15.0
1971	75.3	69.5	13.2	13.0
Average	80.6	[1]75.2	9.1	10.1
White women				
16 to 17 years:				
1968	31.6	[1]24.4	22.0	14.2
1969	36.3	[1]24.2	19.7	[1]8.5
Average	34.0	[1]24.3	20.8	[1]11.5
18 to 19 years:				
1968	47.0	46.0	13.5	10.3
1969	49.2	43.9	11.5	8.8
1970	45.8	41.1	17.9	[1]10.4
1971	50.2	45.2	14.8	14.4
Average	48.1	45.2	14.5	11.1
20 to 24 years:				
1968	52.8	50.0	9.6	7.1
1969	55.7	[1]51.6	7.7	5.9
1970	59.2	[1]53.4	8.1	7.2
1971	56.3	[1]51.9	8.8	8.8
1972	57.0	[1]53.0	9.7	8.1
1973	61.0	[1]56.2	7.0	7.1
Average	57.1	[1]52.8	8.5	7.4
Black and other women				
16 to 17 years:				
1968	24.9	[1]12.3	26.7	32.5
1969	21.3	[1]12.4	40.4	33.6
Average	23.0	[1]12.3	33.7	31.7
18 to 19 years:				
1968	44.3	34.4	24.9	21.4
1969	42.2	[1]31.4	25.2	24.7
1970	38.6	29.1	29.2	25.1
1971	34.5	[1]21.6	33.9	36.1
Average	39.7	[1]28.9	26.5	26.2
20 to 24 years:				
1968	52.6	46.8	17.3	11.4
1969	55.0	53.3	12.8	7.8
1970	52.9	49.1	15.4	14.0
1971	51.0	45.9	17.7	18.3
1972	50.6	49.9	18.9	16.4
1973	52.2	46.4	15.7	18.3
Average	52.3	47.8	16.4	14.6

[1] NLS-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: Data for men refer to November of each year. Data for women refer to February of each year, except in 1969 when the data refer to January.

SOURCE: The 1966-based NLS data for men are from Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" in *The Youth Unemployment Problem: It's Nature, Causes, and Consequences,* (Chicago, University of Chicago Press, forthcoming). Data for women were provided by Michael Borus of the Center for Human Resource Research, Ohio State University.

ferences in employment ratio estimates between the two surveys.

When the individual yearly observations are compared, only about one-half of the differences are statistically significant at the 95-percent confidence level.[10] Such results again suggest that analysts should be cautious about drawing conclusions based on raw differences in labor force measures across surveys. However, the differences for both men and women in the youngest age group are statistically significant and quite large, a pattern we shall also see repeated in the 1979-based NLS.

Reporting accuracy. Could CPS nonself reporting be the cause of NLS-CPS differences? Among white men and black men, where data exist for all three age groups, the survey differences appear to narrow by age: in 1966, the differences (NLS minus CPS) among whites were 10.8 percentage points for ages 16 to 17, 9.0 points for ages 18 to 19, and 4.0 points for ages 20 to 24. For blacks, the differences were 14.8, 10.8, and 7.6 points, respectively.

Why do the differences in survey observations narrow by age, when CPS proxy respondents might be expected to know less about the activities of their older sons as they begin to break away from the family? It might be argued that the probability of male self-response in the CPS increases with age, but there is no evidence that this is the case; indeed, the higher employment ratios of older men imply a lower probability of self-response, because they are less likely to be at home at the time of the interview.[11] Among black women the survey discrepancies also narrow by age. In 1968, for example, the differences were 12.6 percentage points, 9.9 points, and 5.8 points, respectively, for the three age groups. This is consistent with the self-response hypothesis because the likelihood of women responding for themselves in the CPS is not only higher than that for men, but also greater for older women, who are less likely to be in school, than for women age 16 to 19. However, the fact that there is no consistent reduction in the survey differences by age among white women seems difficult to reconcile with the self-response explanation.

Given that the survey differences seem to be especial-

ly pronounced among those age 16 to 17, it is tempting to hypothesize that their employment activity and job-seeking behavior is so casual, intermittent, and marginal that their parents, who are likely to be the CPS respondents, may be unaware of it. In both the CPS and the 1966-based NLS, weekly hours worked by those age 16 to 17 are substantially lower than the hours worked by older youth.

However, while the hypothesis that youth labor market activity is casual, and hence not likely to be known to or considered important by a parent, may have some relevance for job search data, it is more difficult to reconcile with the facts about youth employment. In both the NLS and CPS, weekly hours worked averaged about 20 for men and 15 for women. While this is not an extensive average workweek, one must wonder if parents would be completely unaware of that level of employment activity on the part of their children.[12]

The problem may not be lack of parental knowledge. Instead, there could be honest differences between youths' and parents' perceptions of what constitutes employment. Adults, accustomed to the concept of a "9 to 5" job, may overlook the sporadic casual jobs held by their children. However, such perceptions may not be confined to adults; some young people may have similar beliefs about what a real job is.

While there is currently no solid proof for either proposition, it would be hazardous to neglect the possibility. Thus, the critical question does not simply involve self versus nonself reporting, but also the perceptions held by proxy respondents about the activities of their children; how these perceptions interact with the wording and design of the labor force questions; and the "correctness" of these perceptions in accurately accounting for labor market activity. Similar questions must, of course, be raised concerning the youths' responses.

In the context of the hypothesis about lack of parental knowledge, it is possible that the distribution of reported hours worked in the two surveys is such that a large part of the difference might be found among those with very few hours worked. Currently, however, there is no evidence for or against this proposition. More detailed information is required concerning respondents' interpretations of labor force questions and especially about their perceptions of what it means to be "legitimately" employed. Again, the reasons for significant inter-survey differences may be substantially more complex than the simple self-response hypothesis suggests.

The "parental lack of knowledge" hypothesis should most closely fit the data for those age 18 to 19, because the CPS counts unmarried persons living away from home while attending college as members of their parents' households. The labor force data for these youth are obtained from their parents who may simply be unaware of their children's labor force activity. However, among 16- and 17-year-olds—where inter-survey differences are more apparent—this should not be a factor, these youth being less likely to attend school away from home.

Diminishing differences. Within a few of the age groups, the differences in male employment ratios between the two surveys decline, often considerably, over time. For example, among black men age 18 to 19, the differences go from 12.7 to 6.4 percentage points between 1967 and 1969, and the difference in 1969 is not statistically significant. While it is hazardous to speak of trends in these measures, this apparent narrowing of differences is interesting. To provide robust support for the simple self-response hypothesis as a major explanation for inter-survey differences, one would have to show that the probability of self-response in the CPS increased for young people (especially those age 18 to 19) over these periods. Alternatively, one might argue that the knowledge of proxy respondents about young people's labor force activity had increased. There is no evidence for or against either of these positions. The results may reflect the well-known phenomenon of respondent conditioning as a result of repeated NLS yearly interviews. But it should be noted again that the 1966-based NLS is an unbiased sample of the population only in the first year, and attrition and other problems make strong conclusions based on later estimates difficult.

The data for women reveal a somewhat different story. Especially among whites, the survey discrepancies do not decline over time; in fact, they show some tendency to increase moderately. This is not readily explicable. There is no evidence that the probability of self-response in the CPS declined for young white women between 1968 and 1973. However, the secular increase in female employment since the late 1960's might be cited as indirect evidence of a decline in the probability of self-response, employed women being less likely to be at home when the CPS enumerator calls. Currently, there are no data available to support or reject this possibility.

The narrowing of inter-survey differences is most apparent when youths are followed as they mature. If one traces the NLS-CPS differences for 16- to 17-year-olds in 1967, 18- to 19-year-olds in 1969, and 20- to 24-year-olds in 1970 and 1971, the decline in the survey differences is more visible. Among black men, for example, the differences range from 14.4 percentage points in 1967, to 6.4 points in 1969, and to 5.9 points in 1971. And among white women, the discrepancies fall from 7.2 percentage points (1968), to 4.7 points (1970), and finally to 4.0 points (1972).

This pattern is consistent with what little we understand about the conditioning effect of repeated inter-

views on people's responses to questions, but a range of alternative explanations exists. For example, it is possible that, as youths mature, their employment experience tends to be less marginal and less intermittent. Thus, they have more activity to report, and other family members know more about the activity or attach more weight to it. A test of this hypothesis would require very detailed information not only about the work experience and job-seeking activities of youth, but also about the objective knowledge and subjective perceptions family members have about the labor market activity of their sons and daughters. If this "marginality" hypothesis is valid, however, it does raise the question of the importance of the survey differences. Would measuring a bit more marginal activity warrant a major reevaluation of current analyses of youth employment problems?

Better match with some CPS panels. We have seen that some aspects of the data are difficult to reconcile with the self-response hypothesis, and have presented other explanations which, while plausible, are difficult to test. One methodological factor which may have unduly complicated the analysis is that, up to this point, the CPS data have been based on the full rotation panel—each household is in the sample 4 months, out for 8 months, and back in for 4 months.

Theoretically, each CPS rotation panel is a representative sample of the population, and, therefore, should have the same general labor force characteristics. The fact that each monthly panel consistently yields different labor force estimates—with the reported incidence of employment and unemployment higher in the first and fifth panels than in the others—has been attributed to "rotation group bias," a feature of all panel surveys.[13] The causes of this "bias" are thought to be several, including the effects of respondent conditioning from repeated monthly interviews, possible change in demographic composition of the sample across rotation groups,[14] and the fact that the household respondent may differ from month to month.

Because the NLS is based on yearly interviews, it may be more appropriate to analyze inter-survey differences using data from the CPS first- and fifth-month-in-sample panels. Like the 1966-based NLS, labor force information from the CPS first and fifth rotation panels is obtained primarily by personal visit, which controls for another possible methodological difference between the surveys. A disadvantage is that the sample sizes are reduced considerably. And, of course, this does not necessarily imply that the first and fifth CPS panels yield the most accurate labor force data.

Table 3 presents employment-population ratios and unemployment rates for selected age groups from the CPS first and fifth rotation groups. (Rotation group data by race are not available.) Especially among men age 18 to 19, the NLS-CPS employment differences narrowed considerably.

In fact, the NLS-CPS differences in employment-population ratios among men are statistically significant only twice in the first rotation panel and three times in the fifth group. For men age 18 to 24, the average survey differences in employment estimates using the first rotation panel are insignificant; for the fifth panel the average differences are marginally significant only for men age 20 to 24. However, among men age 16 to 17, the employment ratio differences remain statistically significant. Unemployment rates are never much different. Among women age 18 to 19, the employment-population estimates also tend to be somewhat higher in the first and fifth rotation group compared to the full CPS. And for this age group there are no significant differences between the surveys. Among women age 20 to 24, however, the survey differences in employment are not reduced when one examines specific rotation groups. Again, for women age 16 to 17, the survey discrepancies remain quite large and statistically significant.

Table 3. Employment-population ratios and unemployment rates by sex and age: a comparison of the 1966-based NLS with the CPS first-month and fifth-month panels, and the full CPS, 1967–73

Category	Employment-population ratio				Unemployment rate			
	NLS	CPS first-month panel	CPS fifth-month panel	Full CPS	NLS	CPS first-month panel	CPS fifth-month panel	Full CPS
Men								
16 to 17 years:								
1967	44.9	[1]34.3	38.1	[1]35.2	20.3	24.6	13.3	[1]11.1
18 to 19 years:								
1967	62.3	57.0	52.9	[1]52.3	11.6	9.2	16.2	12.1
1968	64.2	60.3	50.9	[1]54.3	8.7	10.9	11.1	9.2
1969	60.9	61.3	60.3	56.3	13.1	8.3	9.1	9.2
Average	62.5	59.5	54.8	[1]54.3	11.1	9.5	12.1	10.1
20 to 24 years:								
1967	82.1	77.6	80.2	77.8	3.8	5.1	3.5	4.8
1968	80.3	75.5	[1]73.8	76.8	3.5	5.0	8.6	4.4
1969	80.4	80.1	80.4	76.9	5.1	4.0	3.7	4.9
1970	77.9	76.2	73.0	74.3	8.3	9.9	9.8	9.5
1971	79.9	[1]73.1	[1]70.9	[1]73.5	8.6	10.5	11.1	9.8
Average	80.0	76.4	[1]75.4	[1]75.7	6.1	7.1	7.5	6.9
Women								
16 to 17 years:								
1968	30.6	24.5	24.3	[1]22.7	22.6	29.9	17.9	15.9
1969	34.2	[1]22.8	[1]22.8	[1]22.6	22.0	18.3	17.6	[1]11.0
Average	32.3	[1]23.7	[1]23.5	[1]22.6	22.2	25.0	18.0	[1]13.4
18 to 19 years:								
1968	46.6	43.6	45.5	44.4	15.1	17.9	10.9	11.6
1969	48.2	40.6	44.8	42.2	13.4	13.8	12.6	10.7
1970	44.8	47.3	45.5	43.6	19.4	18.0	[1]10.7	[1]12.0
1971	48.0	46.5	43.0	41.9	17.2	14.9	16.2	16.4
Average	46.9	44.4	44.7	43.0	16.3	16.2	12.9	[1]12.8
20 to 24 years:								
1968	52.8	50.9	51.2	49.6	10.6	10.0	7.7	7.6
1969	55.6	51.1	55.5	51.8	8.4	9.8	8.2	6.1
1970	58.4	[1]52.5	[1]51.2	[1]52.8	9.0	8.4	9.1	8.1
1971	55.6	50.0	[1]48.9	[1]51.1	10.0	12.7	11.5	10.0
1972	56.2	51.4	53.6	[1]52.1	10.9	11.9	7.8	9.1
1973	59.8	[1]53.3	[1]54.5	[1]54.8	8.1	11.0	10.8	8.5
Average	56.5	[1]51.6	52.6	[1]52.2	9.5	10.7	9.2	8.3

[1] NLS-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: CPS data for men refer to November of each year. CPS data for women refer to February of each year, except in 1969 when the data refer to January.

The largest "rotation group" effect for women is, quite clearly, on estimates of unemployment. In fact, the unemployment rates for the first-month panel are not only quite a bit higher than those for the full CPS, but are often greater than the NLS measures; none of the NLS-CPS differences is statistically significant. On average, the unemployment rate differences for women 16 to 19 are significant when comparisons are made between the 1966-based NLS and the full CPS, but are not significant when comparisons are limited to the first and fifth CPS panels.

The data in table 3, which reflect an attempt to control for some of the methodological differences between the surveys (except for the self-response difference), do challenge strong conclusions about the relative importance of self versus proxy response in the collection of youth labor force data. A number of other factors of equal or greater importance may be involved, including the effects of rotation group bias on CPS measurements of current labor force status.

Major activity affects comparisons. Table 4 shows data for youth age 16 to 21 in 1967 or 1968 by their "major activity," race, and sex. These data suggest that the inter-survey variations in employment-population ratios for young men are substantially dependent upon their major activity. Even though the employment ratio differences are also statistically significant for men whose major activity is "other," the absolute magnitude of the discrepancies is much less than among those in school. Consistent with previous observations, unemployment rates among the men are less likely to be statistically different. The fact that measured unemployment is generally higher than CPS estimates in the NLS "school" group and lower in the "other" group is not readily explicable. Again, it may be that parents do not know about the job search activity of their children in school, or do not think it relevant. Interestingly, the inter-survey differences in female employment-population ratios tend to be a little different regardless of major activity classification.

From their analysis of the data for men, Richard Freeman and James Medoff concluded that "much of the differences between the surveys occur among those who are going to school and those who have a more marginal commitment to the work force."[15] Data from table 4 appear to support this conclusion. CPS measures also show that young men in school work substantially fewer hours than others. In 1979, average hours worked were 16.5 for those attending school, versus 35.5 for those whose major activity was "other." However, confirmation that the labor force status of the very young is marginal and therefore more difficult to measure precisely in a monthly survey like the CPS which relies on a household respondent would require more detailed information on the kinds of jobs the young men held, their hours worked, and wages.

Table 4. 1966-based NLS and CPS employment-population ratios, and unemployment rates of youth age 16 to 21 by race, sex, and major activity, 1967 or 1968

Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
Major activity:				
School 1967	44.2	[1]31.7	17.1	13.1
Other 1967	89.3	[1]82.1	4.8	[1]10.2
White men				
Major activity:				
School 1967	46.2	[1]33.0	15.4	11.9
Other 1967	89.0	[1]83.8	3.9	[1]8.5
Black and other men				
Major activity:				
School 1967	37.0	[1]21.6	31.7	25.2
Other 1967	83.1	[1]73.1	9.9	[1]18.9
Women				
Major activity:				
School 1968	28.3	23.8	19.7	12.2
Other 1968	56.1	55.1	13.4	11.4
White women				
Major activity:				
School 1968	27.9	25.4	19.4	[1]10.9
Other 1968	60.1	56.7	12.0	10.3
Black and other women				
Major activity:				
School 1968	25.4	[1]11.8	24.3	28.4
Other 1968	48.0	45.4	24.1	19.4

[1] NLS-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: Data refer to November for men and February for women.

SOURCE: This table was derived from data presented in Michael Borus and others, "Counting Youth: A Comparison of Youth Labor Force Statistics in the Current Population Survey and the National Longitudinal Survey," in *Conference Report on Youth Unemployment: Its Measurement and Meaning* (U.S. Department of Labor, 1978), tables 3 and 4, and unpublished data on the proportion of the NLS sample whose major activity is "school" and "other" provided by Gilbert Nestel of the Center for Human Resource Research at Ohio State University.

In fact, some might ask how parents may truly be unaware that their sons are working 16 hours per week. It is possible, of course, that the distribution of hours worked is such that the inter-survey differences are greatest among those youth who work very few hours (less than 10, for example) at odd jobs, but we have no direct information about this. If hours worked per week are minimal, parents may honestly be unaware of their sons' activity or even less inclined to view it as "real" work. However, testing such a proposition would be very difficult.

Among women, the survey differences for employment are much smaller than for men and are statistically significant but once. According to Camilla Brooks and Barbara Bailar, women have a much higher probability of being interviewed for themselves in the CPS. They also note, however, that "groups which are largely responded for by proxies are . . . young men and women in school."[16] Thus, support for the self versus proxy response hypothesis is not so clear-cut. Unemployment rates for white women whose major activity is school are significantly higher in the 1966-based NLS. This ob-

servation is consistent with some versions of the self-response hypothesis which have as components the knowledge and perceptions of parents concerning youth job search, but once again there may be alternative explanations.

Table 5, which is taken from a paper by Freeman and Medoff, compares the labor force activity of men age 20 to 24 by family status, to test the contention that a survey based on self-response will provide a more accurate—or, at least, a different—measure of the activity of those who are probably most likely to be marginally attached to the labor market. According to the authors, if this hypothesis is true, differences between the surveys should be greater among other household members than among those who maintain families. The data do not provide any solid evidence for these conjectures. None of the survey differences is statistically significant, although the raw differences are somewhat larger for other household members.

A corollary hypothesis is that the labor force activity of male "household heads" in the CPS is more likely to be self-reported, which would presumably account for the small measurement differences among men who maintain families. There exists no direct evidence for or against this explanation either. Indeed, the probability of self-response by men who maintain families might be less than for others; because they are more likely to be working, such persons are often not at home when the CPS enumerator calls. Of course, if the activity of other household members is marginal, while that of "household heads" is substantive, there may be a greater likelihood that the labor market activity of "heads" is considered work by everyone in the family. This would account for the somewhat smaller raw differences observed for those who maintain families, but again this conjecture is not supported empirically, and goes considerably beyond the issue of who responds to a structured set of labor force questions.

Table 5. The 1966-based NLS and CPS estimates of the labor force activity of men age 20 to 24 by family status

Category	NLS	CPS
Men who maintain families		
Labor force participation rate	93.2	94.0
Employment-population ratio	91.9	91.3
Unemployment rate	1.3	2.7
Other men		
Labor force participation rate	73.0	68.5
Employment-population ratio	68.3	63.0
Unemployment rate	4.7	5.5

NOTE: Although the NLS sample was weighted for age in order to facilitate comparisons with the CPS data, there is still a difference between the two sets of figures. Whereas both sets of data refer to the survey week, the NLS data refer to the fall of 1968, and the CPS data refer to March 1969.

SOURCE: Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" in *The Youth Unemployment Problem: Its Nature, Causes, and Consequences* (Chicago, University of Chicago Press, forthcoming).

Tentative conclusions. This examination of the 1966-based NLS and CPS leads to certain tentative conclusions. First, focusing on raw differences between surveys is inadequate; in many instances the differences are not statistically significant, especially when the more appropriate first and fifth CPS rotation panels are compared to the NLS data. However, because of small sample sizes, the test for statistical significance must itself be carefully interpreted. And the fact that the NLS employment estimates are consistently higher than CPS measures lends some weight to the survey differences.

Second, the largest inter-survey differences occur among the very young and those whose major activity is attending school. This may mean that the NLS measures slightly more marginal labor force activity than does the CPS. However, at the level of aggregation of this analysis, this is but a tentative conjecture.

Third, while the self-response hypothesis of inter-survey variations cannot be rejected out of hand, explanations for any real differences in the survey measures appear to be much more complicated. In particular, we must admit the possibility of differing perceptions between parents and their children about what constitutes "real" work and account for the interaction of these perceptions with the content and interpretation of labor force questions. Therefore, unless one is content with a "proxy" explanation, it is necessary to look beyond the identity of survey respondents for the reasons underlying inter-survey differences. Fourth, the discrepancies between surveys do not appear to be of such substantive importance that they warrant a major reassessment of the employment problems of youth, especially black youth. Any conclusion to the contrary would necessitate a leap of faith from aggregate data to causal inference—almost certainly an unwarranted jump. And finally, there are differences between the surveys other than type of respondent, such as overall questionnaire design and length, which cannot be overlooked.

The newest NLS

Recently a new 5-year youth-specific longitudinal survey was undertaken. The 1979-based NLS is a sample study of about 12,700 youth (including a military subsample), born in calendar years 1957 through 1964. The sample design and data collection are conducted by the National Opinion Research Center at the University of Chicago, and the questionnaire design and data analysis are the responsibility of the Center for Human Resource Research at Ohio State. This NLS sample represents a basic cross-section of the Nation's youth, augmented by independently drawn subsamples of black, Hispanic, and non-black, non-Hispanic poor youth.

The information elicited ranges from current labor force status (the usual CPS labor force questions) to educational and work experience, earnings, family back-

ground, aspirations and expectations, and so forth. As a result, the questionnaire is quite long (22 sections in all), and the current labor force status questions follow those concerning family background, schooling, knowledge of and experience in the world of work, and others. All interviews are conducted directly with the youth by personal visit. Thus, in many methodological respects, the newest NLS is similar to the 1966-based NLS.

Preliminary data for the first year of the study have been released.[17] But because analysis of the weighting procedures and estimates of standard errors are still being developed, the following discussion of inter-survey variations is necessarily qualitative and brief, and does not provide information about the statistical significance of any differences.[18]

The great majority of 1979-based interviews occurred between February and May 1979, with the modal month—March—accounting for about 44 percent of the contacts. Therefore, most of the tables presented here compare results of the full CPS for March with NLS data from interviews conducted between February and May.

Employment. A quick perusal of the employment data in tables 6 and 7 suggests the following: First, employment-population ratios are always higher in the NLS than in the CPS. Second, variations between the surveys are slightly larger for men than for women. Third, inter-survey differences narrow considerably by age for all groups. And finally, when youth are classified by major activity, the differences occur almost entirely among those whose major activity is attending school.

In many respects, these comparisons are similar to those between the 1966-based NLS and the CPS. However, there are also some notable differences. For example, among black men age 16 to 19, the magnitude of the inter-survey employment variation is somewhat less in 1979 (table 6) than in 1967 (table 2), especially for those age 18 to 19 (12.7 percentage points in 1967 versus 6.5 points in 1979). For white men and all men, the magnitudes of the discrepancies are fairly similar between the 2 years.

More perspective may be gleaned by comparing tables 4 and 7. Except for white women, the employment differences for the "major activity-school" group—the area in which the most pronounced inter-survey discrepancies had existed—are considerably less in 1979. This apparent narrowing of the differences raises disconcerting questions, in particular concerning the relative importance of the self-response hypothesis, because there is no evidence that the probability of self-response in the CPS has increased over time for these groups of young people. More information than is currently available would be required to address this issue.

Table 6. The 1979-based NLS and CPS employment-population ratios and unemployment rates for youth age 16 to 21 by race, sex, and age, March 1979

Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
16 to 17 years	45.6	36.7	28.3	21.9
18 to 19 years	65.3	58.4	15.5	14.3
20 to 21 years	74.1	69.2	10.4	10.8
White men[1]				
16 to 17 years	48.5	40.4	24.6	19.6
18 to 19 years	68.0	61.3	12.8	12.6
20 to 21 years	75.3	70.9	8.7	8.9
Black men[2]				
16 to 17 years	27.4	16.5	53.8	43.5
18 to 19 years	47.4	40.9	34.6	27.0
20 to 21 years	62.8	58.2	23.4	23.2
Women				
16 to 17 years	41.5	34.5	29.6	18.1
18 to 19 years	56.4	51.6	20.9	13.0
20 to 21 years	61.4	59.3	14.8	10.5
White women[1]				
16 to 17 years	44.6	38.4	26.5	16.2
18 to 19 years	59.4	55.5	18.0	11.4
20 to 21 years	63.8	62.3	12.2	8.5
Black women[2]				
16 to 17 years	21.6	14.5	54.9	37.1
18 to 19 years	38.1	30.9	40.3	26.0
20 to 21 years	45.9	43.1	32.5	24.2

[1] The NLS includes Hispanics and other races in the white category. The CPS includes about 96 percent of Hispanics, but not other races, in the white category.

[2] The NLS excludes other races from the black category. The CPS includes other races and about 4 percent of Hispanics in the black category.

SOURCE: Michael Borus and others, "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market—1979* (U.S. Department of Labor, 1980), tables 2.2 and 2.6.

Unemployment. The 1979-based NLS unemployment rates are higher—often considerably so—among young men and for all the female age groups than in the CPS. While the inter-survey differences for men age 18 to 21 are very small, NLS unemployment rates for those whose major activity is school tend to be much larger than CPS estimates. The rates for men whose major activity is not school are similar, while there are still some disparities for women.

These results differ substantially from the 1966-based NLS-CPS comparisons, in which unemployment rates, particularly among men, tended to be little different. One appealing hypothesis for some of the 1979-based NLS differences is that CPS data refer to March, whereas the newest NLS includes information gathered between February and May. In May, a large number of youth begin looking for work, although the peak labor force activity does not occur until July. It might be thought, therefore, that this seasonal factor is responsible for some of the results. However, this is not the case; a relatively small number of the 1979 NLS interviews were conducted in May, and respondents counted as unemployed were not concentrated in this month.[19] Why are unemployment rate differences between the 1966-based NLS and the CPS small and seldom significant, and the

1979 NLS-CPS differences very often quite large? Two substantive hypotheses for this apparent anomaly come to mind. First, many students might have been looking for summer or post-graduation jobs during the 1979 NLS interview period (spring 1979). They would have met the CPS job-search criterion for being classified as unemployed, but it is not clear whether they would have met the second criterion, current availability for work.

The second hypothesis takes note of the fact that the 1966-based NLS comparisons with the CPS reflected the more favorable job markets of the late 1960's; during that time it was easier to find a job, so that the relatively larger NLS labor force was "allocated" more to employment than unemployment. But by 1979, secular developments had made it more difficult to find acceptable employment; thus, the higher NLS labor force participation was more concentrated in unemployment. Unfortunately, each of these hypotheses is difficult to test in the absence of very detailed information on the job search activity and other characteristics of unemployed youth. And finally, there are also a few methodological differences between the two NLS surveys that could produce the observed results; for example, different organizations were in charge of survey design and data collection, and interviewers may not have had comparable training.

Table 7. The 1979-based NLS and CPS employment-population ratios and unemployment rates for youth age 16 to 21 by race, sex, and major activity, March 1979

Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
Major activity:				
School	38.2	29.9	28.0	20.9
Other	80.8	79.2	12.3	12.3
White men [1]				
Major activity:				
School	40.7	32.9	23.7	18.5
Other	83.2	81.7	10.5	10.6
Black men [2]				
Major activity:				
School	22.5	13.8	56.6	42.8
Other	64.6	63.4	26.1	24.1
Women				
Major activity:				
School	36.3	30.4	31.3	17.0
Other	65.4	64.9	16.3	11.6
White women [1]				
Major activity:				
School	38.9	33.5	27.7	15.8
Other	68.1	68.7	14.0	9.5
Black women [2]				
Major activity:				
School	21.7	14.0	54.1	30.0
Other	47.0	44.0	33.7	26.4

[1] See footnote 1, table 6.
[2] See footnote 2, table 6.

SOURCE: Michael Borus and others, "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market—1979* (U.S. Department of Labor, 1980), table 2.7.

CPS panels compared. As previously noted, NLS results are probably most appropriately compared with first-month-in-sample CPS data to minimize problems of respondent conditioning and other factors contributing to "rotation group bias." Table 8 presents some limited data for men and women age 16 to 19. As expected, the CPS employment-population ratios for men are higher in the first rotation group and 1979 NLS-CPS discrepancies are considerably smaller than when comparisons are made with the full CPS. Among women, however, the first-month-in-sample employment comparisons result in an increase in the inter-survey variations. Unemployment rate differences tend to narrow substantially, particularly for women, when comparisons are made with the first rotation panel. By no means does this refinement entirely account for the differences between survey measures, but it is clear that rotation group bias cannot be ignored when comparing data across surveys.

Participation questions may affect data. A slight portion of the 1979 NLS-CPS unemployment rate discrepancies may also result from an important inter-survey difference in the labor force questions. The 1979-based NLS asked the complete battery of labor force questions, including those intended to identify the reasons for persons' nonparticipation in the labor force. The CPS first rotation panel is not asked these questions; rather the probing not-in-the-labor-force questions are posed only to the fourth and eighth panels.

Evidence from the CPS indicates that it makes quite a bit of difference whether the questions about current desire for work are asked in the first CPS interview or in subsequent months.[20] For example, between January 1967 and December 1969, the not-in-the-labor-force questions were posed to the first and fifth month panels; the "first month bias" during this time was substantially higher than before or subsequently, especially for reported unemployment and part-time employment among youth. Indeed, during the 1967–69 period, there was an average 20-percent drop between the first-month-to-entire-sample ratio and the corresponding ratio for the second month. Since January 1970, the not-in-the-labor-force questions have been asked only of the fourth and eighth rotation groups.

Census Bureau research strongly supports the hypothesis that inclusion of these questions has a large effect on reported unemployment by rotation group. Following the January 1970 switch, the incidence of unemployment for the first and fifth month in sample fell relative to the other "months in sample," and that for the fourth and eighth months increased. That is, it was found that persons in the latter panels were being reported as unemployed who would have been classified as not in the labor force had they not been asked about current desire for a job and future job-search activity.

Two explanations for this phenomenon have been advanced. First, the probing nature of the not-in-the-labor-force questions may elicit information that conflicts with or is not obtained from the basic CPS questions, and the enumerators consequently change the original responses. And second, CPS household respondents may be conditioned by the additional questions and provide information for other family members differently than if the not-in-the-labor-force questions had not been asked.

Thus, the 1979 NLS battery of labor force questions is somewhat different from that faced by the CPS first-month group. It is unclear what effect these inter-survey design variations might have on NLS estimates, especially because that survey should not reflect any respondent conditioning. However, by making certain very rough assumptions, we may attempt to estimate their impact on the CPS.

The tabulation below shows the observed 1979 annual average unemployment rate for the first rotation group, and a recalculated 1979 unemployment rate which is based on the 1968 "rotation group index." (A rotation group index is simply the value for one rotation group divided by the average value for all rotation groups and multiplied by 100. A rotation group labor force index of 110.0 means that a group's labor force was 10 percent greater than the average.) If it is assumed that any differences between the 1968 and 1979 rotation group indexes are due solely to the procedural change for not-in-the-labor-force questions, the following is an estimate of what the 1979 CPS unemployment rate would have been had the change not been implemented:

	Average unemployment rate during 1979 for first-month CPS panel	
	Reported	*Adjusted by 1968 rotation group indexes*
Men:		
16 to 17 years	19.6	21.0
18 to 19 years	14.3	15.7
Women:		
16 to 17 years	23.3	24.3
18 to 19 years	16.2	17.2

In each case the unemployment rate calculated using the 1968 indexes is higher by at least 1 percentage point. Although this revision procedure is admittedly crude and intended only for illustration, it does show that the possibility of a slight bias in the 1979-based NLS data because of the inclusion of the not-in-the-labor-force questions cannot be ruled out.

In summary, there are some similarities between the 1979 NLS-CPS comparisons and the disparities previously noted between the 1966-based NLS and CPS surveys, but there also appears to have been a shift in the magnitude of the differences. In particular there was a slight reduction in employment differences and a large increase in unemployment differences between the two studies for which no empirically verified explanation currently exists. In the future, rigorous examination of the evidence suggested above for the unemployment differences, rotation group bias problems, and interactions of questions on respondents may reveal that the inter-survey differences are slightly narrower than previously thought.

Table 8. Employment-population ratios and unemployment rates for youth age 16 to 19 by sex and age: a comparison of the 1979-based NLS and the full CPS with the CPS first-month panel and the weighted average of the CPS first-month panel

Category	Employment-population ratio				Unemployment rate			
	NLS	Full CPS	CPS first-month panel	Weighted average of CPS first-month panel	NLS	Full CPS	CPS first-month panel	Weighted average of CPS first-month panel
Men								
16 to 17 years . . .	45.6	36.7	39.3	41.8	28.3	21.9	23.4	21.2
18 to 19 years . . .	65.3	58.4	59.6	61.6	15.5	14.3	17.0	15.0
Women								
16 to 17 years . . .	41.5	34.5	32.0	33.7	29.6	18.1	22.9	22.8
18 to 19 years . . .	56.4	51.6	47.0	50.5	20.9	13.0	18.5	15.9

NOTE: The NLS data are based on interviews conducted between February and May 1979. About one-half of the interviews took place in March. Full CPS and CPS first-month panel data relate to March. The weighted average of the CPS first-month panel relates to the period February through May for the first-month-in-sample; the weights attached to each month are based on the proportion of NLS interviews conducted in each month.

An overview of the findings

A number of findings from this comparative analysis merit emphasis. First, all three longitudinal surveys reveal higher estimates of labor force participation ratios and employment-population ratios than does the CPS. Second, with the important exception of the newest NLS, unemployment rates are little different between studies. Third, raw inter-survey differences are, in many instances, not statistically significant. (However, it should be kept in mind that none of the other surveys was constructed to test CPS youth labor force measures and that because of the relatively small sample sizes large discrepancies must exist between survey measures for statistical significance to be detected.) Fourth, comparisons of the full CPS with other one-time or yearly surveys ignore the problem of rotation group bias, a factor which certainly accounts for some of the inter-survey differences. Fifth, the discrepancies, especially between the CPS and the 1966 and 1979 NLS data, appear to be concentrated among young teenagers and those whose major activity is attending school, perhaps because of the marginal nature of their labor force activity. Again, however, the evidence for this proposition is only suggestive. Sixth, the focus on self versus proxy response as the cause of inter-survey variations probably obscures a number of other important influences that may be pro-

ducing the differences.

Finally, there are important methodological variations between the surveys that almost certainly account for some of the discrepancies. The class of 1972 survey, for example, was undoubtedly subject to serious recall bias, and the differences between the CPS and the 1972-based study narrowed when the length of recall was subsequently reduced. Other critical differences among the surveys include questionnaire design, length, and content. The interaction of these factors with respondents' memory and desire to be accommodative may simply produce an unwanted response bias rather than "better" data, if analysis of results from other surveys is a reliable guide. And the fact that longitudinal surveys are different in purpose from the CPS probably contributes to even more subtle variations in the resulting data.

In this context, it is important to reiterate the distinction between the accuracy of a survey and the reconciliation of inter-survey differences. None of the surveys analyzed in this article has any *a priori* claim to accuracy. And, while we have resolved some aspects of the inter-study discrepancies on methodological and other grounds, unexplained differences remain. □

FOOTNOTES

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[1] Michael Borus and others, "Counting Youth: A Comparison of Youth Labor Force Statistics in the Current Population Survey and the National Longitudinal Surveys," in *Conference Report on Youth Unemployment: Its Measurement and Meaning* (U.S. Department of Labor, 1978), pp. 15–34; Michael Borus and others in "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market-1979* (U.S. Department of Labor, 1980); Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" and Robert H. Myer and David A. Wise, "High School Preparation and Early Labor Market Experience," in *The Youth Unemployment Problem: Its Nature, Causes, and Consequences* (Chicago, University of Chicago Press, forthcoming).

[2] The basic analysis of labor market data from the survey is found in Robert H. Myer and David A. Wise, "High School Preparation." A complete discussion of the class of 1972 survey is contained in Jay Levensohn and others, *National Longitudinal Study Base Year, First, Second, and Third Follow-up Data File Users Manual,* Vol. 1 (Washington, National Center for Education Statistics, 1978).

[3] See Christina O. Gibson and others, "Interaction of Survey Questions as It Relates to Interviewer-Respondent Bias," *Proceedings of the Survey Research Methods Section,* American Statistical Association, 1978, pp. 251–56.

[4] See Louis E. Williams, "Methods Test Phase III: First Report on the Accuracy of Retrospective Interviewing and Effects of Nonself Response on Labor Force Status," Memo, Bureau of the Census, June 24, 1969, p. 4; Charles Jones and Robert Aquilino, "Methods Test Phase III: Second Report . . . ," Memo, Bureau of the Census, Jan. 29, 1970; and Robert Aquilino, "Methods Test Phase III: Third Report . . . ," Memo, Bureau of the Census, Apr. 2, 1979.

[5] Information to calculate standard errors for the CPS data is contained in *Employment of High School Graduates and Dropouts, October 1972,* Special Labor Force Report 155 (Bureau of Labor Statistics, 1973), table 2; *Employment of High School Graduates and Dropouts, October 1973,* Special Labor Force Report 168 (Bureau of Labor Statistics, 1974), table 2; and *Students, Graduates, and Dropouts in the Labor Market, October 1974,* Special Labor Force Report 180 (Bureau of Labor Statistics, 1975), table 2. Standard errors for the class of 1972 survey were calculated as follows:

$$\sigma = \left(\sqrt{\frac{P\,(1-P)}{N}}\right)\left(1.16\right)$$

where σ equals the approximate standard error, P equals the unemployment rate or employment-population ratio, N equals the sample size, and 1.16 is the estimated design effect resulting from decrease in the efficiency of the 1972-based survey due to the clustering of the sample. The sample size and labor force information is from Robert H. Myer and David A. Wise, "High School Preparation."

The hypothesis that the survey differences are statistically significant is tested according to the following formula:

$$X = \frac{DIFF}{\sqrt{\sigma_1^2 + \sigma_2^2}}$$

where DIFF equals the difference between the survey measures, and σ is the approximate standard error. In this study, inter-survey differences are considered statistically significant if X is greater than or equal to 2, which roughly represents the 95-percent confidence interval.

[6] In the CPS, about 20 percent of all the men and 55 percent of all the women are self-respondents. Information on working men and young people in school is largely derived from proxy respondents. See Camilla Brooks and Barbara Bailar, "An Error Profile: Employment as Measured by the Current Population Survey," report prepared for the Federal Committee on Statistical Methodology, Subcommittee on Nonsampling Errors, 1978.

[7] Freeman and Medoff, "Why Does," p. 18.

[8] However, results of a recent study indicate that attrition from the 1966-based NLS sample may not be of substantial importance. See Michael Borus and others, "Counting Youth," pp. 18–19.

[9] It is difficult to assess any trends in the survey differences, save perhaps among youth age 20 to 24, where, it should be noted, racial differences in unemployment rates do not seem to differ across surveys.

[10] Information to calculate standard errors is contained in "CPS Variances-New Standard Errors for Monthly Estimates of Levels, Percentages and Participation Rates for the CPS Labor Force Data for the 461 Area Design" (Bureau of the Census, 1977); and *Career Thresholds,* Volume 3, Manpower Research Monograph 16, (U.S. Department of Labor, 1971), pp. 129–40. The formula to test the hypothesis that the differences are statistically significant is:

$$X = \frac{DIFF}{\sqrt{\sigma_1^2 + \sigma_2^2}}$$

where DIFF equals the differences between the surveys, and σ is the approximate standard error. (See footnote 5 for the interpretation of X.) The base used to calculate the standard error in both surveys is the CPS estimate of the civilian noninstitutional population.

[11] See Brooks and Bailar, "An Error Profile," pp. 17–18.

[12] Note that we are concerned with current activity. Freeman and Medoff note in "Why Does" that males in the NLS sample report working more weeks over the past year than is reported for them by their mothers. The problems with retrospective questions are well known, and the authors' regression results so inconclusive that this is a very poor test of the objective knowledge of respondents.

[13] See Brooks and Bailar, "An Error Profile," pp. 61–65; *The Current Population Survey: Design and Methodology,* Technical Paper 40 (Bureau of the Census, 1978), pp. 82–85; and W. H. Williams and C. L. Mallows, "Systematic Biases in Panel Surveys Due to Differential Nonresponse," *Journal of the American Statistical Association,* September 1970, pp. 1338–49.

[14] For instance, in the May 1978 CPS the first rotation group is 21.7 percent black and has a mean age of 35.66 years. For the eighth rotation group the comparable figures are 20.4 percent and 36.72 years.

[15] Freeman and Medoff, "Why Does," p. 16.

[16] Brooks and Bailar, "An Error Profile," p. 17.

[17] See Borus, "Pathways to the Future." This report presents a wealth of information about youth; included is an appendix that outlines the sample design and weighting procedures.

[18] Because the newest NLS oversampled young blacks and youth from low income families, the employment and unemployment estimates may be more sensitive to the weighting procedure than is the CPS, which is self-weighting. For example, as a result of this oversampling, there is a group of youth with a higher probability of not being in school and a higher probability of being unemployed. Therefore, if the weights are not entirely appropriate, it could result in a higher estimate of unemployment and labor force participation. Under the same scenario, estimates of employment would be lower. Until this issue is resolved, some care must be used in interpreting the significance of the survey differences.

[19] Gilbert Nestel of the Center for Human Resource Research at Ohio State University was kind enough to provide us with this information.

[20] Evidence for the information in this paragraph can be found in: Louis E. Williams, "Effect of Item 24 on Rotation Group Bias," Memo, Bureau of the Census, Aug. 17, 1970; Louis E. Williams, "The Effect of Item 24 on Rotation Group Bias for Unemployment in the CPS," Memo, Bureau of the Census, Apr. 7, 1972; and Morton Boisen, "Bureau of Labor Statistics' Request for Additional Analysis on the Effect of Item 24 on the Level of the Composite and Noncomposite Estimate in CPS," Memo, Bureau of the Census, June 18, 1975.

APPENDIX: Other measures of youth labor force activity

National crime survey

The NCS covers about 72,000 households which are visited twice a year for 3 years, with new units replacing expired ones at the end of the period. About 10,000 households are interviewed by Census Bureau enumerators each month. The basic methodological differences between the NCS and CPS are that the NCS is 90 to 95 percent self-response, and most NCS interviews are personal visits rather than telephone contacts.

Although the NCS is chiefly a crime survey and does not contain a complete battery of labor force questions, certain questions are similar enough to those in the CPS to facilitate a test of the self-response hypothesis. Moreover, NCS labor force questions are asked before eliciting information about crime victimization, eliminating one previously cited source of response bias.

To minimize another methodological difference between NCS and CPS, table A–1 compares 1977 annual average employment-population ratios and unemployment rates only for the first-month-in-sample respondents.

The results, though not conclusive, raise additional questions concerning the relative importance of self-response in the measurement of youth labor force activity.

The CPS estimates of employment-population ratios tend to be slightly larger than those from the NCS, although the differences are usually not statistically significant. In any case, the extent of the inter-survey employment differences is less than when similar comparisons are made between the CPS and the youth-specific surveys. Interestingly, employment-population ratios from the CPS are higher than NCS measures for men 16 to 19, but lower for those age 20 to 24. This pattern is the exact reverse of the NLS-CPS relationship in which the survey differences were found to narrow by age. Also, subject to the analytical limitations imposed by relatively small samples, variations in the employment-population ratios are statistically significant in only 4 out of 12 observations, and in one-half of those, the CPS yielded the higher ratio. Finally, the CPS-measured unemployment rate is always greater than that from the NCS.

Even considering the different emphasis of each survey and the abridged version of the NCS labor force questions, one cannot simply dismiss the results of this test of the self-response hypothesis—findings which seem to contradict observations from the NLS-CPS comparisons. If nothing else, the NCS-CPS comparisons

Table A-1. Employment-population ratios and unemployment rates for youth age 16 to 24 by sex: a comparison of the National Crime Survey 1977 average for incoming respondents and the 1977 average CPS first-month panels, weighted to population estimates

Category	Employment-population ratio			Unemployment rate		
	NCS first-month panel	CPS first-month panel	Difference	NCS first-month panel	CPS first-month panel	Difference
Total						
16 to 17 years	38.9	40.5	1.6	18.4	21.7	[1]3.3
18 to 19 years	56.5	57.8	1.3	13.7	17.5	[1]3.8
20 to 21 years	66.6	63.8	[1]–2.8	10.0	13.8	[1]3.8
22 to 24 years	68.9	71.1	[1]2.2	8.1	11.1	[1]3.0
Men						
16 to 17 years	42.6	44.7	2.1	18.3	20.4	2.1
18 to 19 years	61.6	63.2	2.1	12.3	16.3	[1]4.0
20 to 21 years	75.1	69.9	[1]–5.2	9.4	13.6	[1]4.2
22 to 24 years	80.5	80.6	.1	7.4	10.5	[1]3.1
Women						
16 to 17 years	35.1	36.2	1.1	18.5	23.2	[1]4.7
18 to 19 years	52.2	52.6	.4	15.2	18.9	[1]3.7
20 to 21 years	58.8	58.1	–.7	10.6	14.1	[1]3.5
22 to 24 years	58.4	62.2	[1]3.8	8.8	11.9	[1]3.1

[1] NCS-CPS difference is statistically significant at the 95-percent confidence level.

should warn analysts against making hasty judgements about the source—and possible significance—of differences between any two surveys.

The Census Bureau has also performed some comparisons of NCS labor force estimates with those from the CPS. Results of these studies may be found in Martin Boisen, "Comparison of NCS and CPS Labor Force Data," Memo, Bureau of the Census, Nov. 14, 1975; John Bushery, "Update of Comparisons of NCS and CPS Labor Force Data—Addendum 1," Memo, Bureau of the Census, Mar. 14, 1978; and Henry Woltman and John Bushery, "NCS Labor Force Reinterview Study," Memo, Bureau of the Census, June 8, 1978.

Methods development survey

The MDS is a research project designed to test the potential impact of alternative data collection methods and concepts on the CPS. Phase I of the study compared alternative data collection procedures, including the use of self versus proxy response. MDS data should be used carefully, because the sample size for youth is particularly small and because there are some methodological interactions—for example, between type of respondent, contact (telephone or personal interview), and interviewer (same or different enumerator each month)—that are not controlled. Also, the MDS is not a national probability sample, but rather, during Phase I, was limited to four areas of the country. However, there is no evidence that these areas are atypical in terms of self versus household response.

Results from Phase I were used to calculate employment-population ratios for those age 16 to 21 by type of respondent. (See table A–2.) "Household respondent" refers to the usual responsible person in the CPS, and "self-response" to the individual reports of each eligible household member. (For more detail, see Anthony Roman, "MDS Phase I Results for the 16–21 Age Group," Memo, Bureau of the Census, May 16, 1980; and Gary Shapiro, "Effect of Survey Methodology on Teen-Age Employment to Population Ratios," Memo, Bureau of the Census, June 1, 1980.)

MDS-CPS comparisons do not provide robust support for the hypothesis that proxy response is a major cause of differences in the measurement of youth employment between surveys. Even among those age 16 to 17—where previous comparisons suggested the most pronounced differences—the only clearcut support for the hypothesis is found among men. Interestingly, it is those age 20 to 21 who provide the best evidence for the effect of self-response, but it is precisely these older youth for which CPS-other survey differences have been noticeably smaller. One possible reason for this finding is that the MDS did not personally contact unmarried college students who were living away from home but were considered to be part of their parents' households. In short, the comparisons again suggest that other reasons discussed throughout the preceding article may be much more important components of inter-survey variation than self versus proxy response. In fact, self-response in the MDS results in a smaller estimate of employment-population ratios, except for men age 16 to 17 and minorities age 18 to 19, where self-response yields a moderately higher figure.

Table A-2. MDS employment-population ratios by type of respondent, sex, age, and race, cumulative figures from June 1978 to September 1979

Category	Household respondent	Self respondent	Estimated standard error of the difference
Total			
16 to 21 years	55.7	54.5	1.4
16 to 19 years	52.2	48.5	1.7
16 to 17 years	40.5	39.8	2.3
18 to 19 years	63.9	58.3	2.3
20 to 21 years	63.9	69.1	2.6
Men			
16 to 21 years	57.9	61.7	2.0
16 to 19 years	54.0	54.0	2.4
16 to 17 years	40.0	46.5	3.3
18 to 19 years	69.3	63.1	3.3
20 to 21 years	68.5	80.5	3.4
Women			
16 to 21 years	53.7	47.7	2.0
16 to 19 years	50.4	43.4	2.4
16 to 17 years	41.1	33.0	3.3
18 to 19 years	58.9	54.1	3.3
20 to 21 years	60.5	58.3	3.5
White			
16 to 21 years	59.5	59.1	1.6
16 to 19 years	55.7	53.0	1.9
16 to 17 years	42.8	46.2	2.6
18 to 19 years	68.0	59.9	2.5
20 to 21 years	68.2	74.6	2.6
Black and other			
16 to 21 years	34.9	35.9	3.3
16 to 19 years	33.3	29.0	3.9
16 to 17 years	29.0	17.8	4.6
18 to 19 years	38.5	48.6	6.4
20 to 21 years	39.0	49.8	6.2

SOURCE: Anthony Roman, "MDS Phase 1 Results for the 16–21 Age Group," Memo, Bureau of the Census, May 16, 1980.

In addition to the information previously analyzed, youth-specific data from the Census Bureau's Survey of Income and Education (SIE) were also compared with CPS measures. Results of this comparison will not be discussed here in detail, but it was found that CPS estimates of youth labor force activity were little different from those in the SIE. (A complete description of the SIE may be found in *Household Money Income in 1975 by Housing Tenure and Residence for the United States, Regions, Divisions, and States,* Current Population Reports, Series P–60, No. 108 (Bureau of the Census, 1977)).

CPS data on the effect of rotation group bias on youth labor force estimates were also examined. The results of this study showed that youth are more likely to be classified as employed or unemployed the first month they are in the sample than in later months. It was also found that youth exhibit rotation group patterns that are not identical to those for adults.

A more complete discussion of the results of the SIE-CPS comparisons and the investigation of youth rotation group bias is available from the author upon request.

The job safety law of 1970: its passage was perilous

Just over a decade ago Congress enacted the Occupational Safety and Health Act of 1970 to help protect the Nation's workers on the job, following a 3-year legislative struggle

JUDSON MACLAURY

On December 29, 1970, President Richard Nixon signed into law the Williams-Steiger Occupational Safety and Health Act, which gave the Federal Government the authority to set and enforce safety and health standards for most of the country's workers.[1] This act was the result of a hard-fought legislative battle which began in 1968 when President Lyndon Johnson unsuccessfully sought a similar measure. However, the roots of government regulation of workplace hazards date back to the late 19th century.

State factory laws

In the factories that sprang up after the Civil War, chemicals, dusts, dangerous machines, and a confusing jumble of belts, pulleys, and gears confronted inexperienced, often very young workers. The reports of State labor bureaus in the 1870's and 1880's were full of tragedies that too often struck the unwary or the unlucky. The Massachusetts report of 1872 described some particularly grisly accidents. These tragedies and the industrial accident statistics that State labor bureaus collected, spurred social reformers and the budding labor movement to call for State factory safety and health laws. In 1870, the Massachusetts Bureau of Statistics of Labor urged legislation to deal with "the peril to health from lack of ventilation." In 1877, Massachusetts passed the Nation's first factory inspection law. It required guarding of belts, shafts, and gears, protection on elevators, and adequate fire exits.[2] Its passage prompted a flurry of State factory acts. By 1890, nine States provided for factory inspectors, 13 required machine guarding, and 21 made limited provision for health hazards.

The labyrinth of State job safety and health legislation covered a wide range of workplace hazards but was badly flawed. There were too many holes in the piecemeal system and numerous hazards were left uncontrolled. The laws had to be amended often to cover new hazards. Many legislatures failed to provide adequate funds for enforcement. Inspectors, who were often political appointees, were not always given the legal right to enter workplaces. States with strong safety and health laws tended to lose industry to those with less stringent ones, which made States competitive and limited their legislative efforts.

The Progressive Era and the growth of mass circulation newspapers and national magazines helped forge a national movement for workers' safety and health. In 1907, 362 coal miners were killed at Monongah, W. Va., in the worst U.S. mine disaster. This widely publicized tragedy shocked the Nation and led to the creation in 1910 of the U.S. Bureau of Mines to promote mine safety.

That same year William B. Hard, a muckraking journalist, published an article in *Everybody's Magazine* titled, "Making Steel and Killing Men," based on his

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firsthand investigations of a Chicago mill.[3] Hard estimated that every year, out of a work force of 10,000 workers, 1,200 were killed or seriously injured. He urged the steel industry to use its technical knowledge to reduce this casualty rate. U.S. Steel, spurred by mounting accident tolls, had already begun to collect accident statistics. Safety programs in subsidiaries dated back to the 1890's. In 1908, U.S. Steel formed a safety committee with instructions from the company president, Judge Elbert Gary, to cut the accident rate as much as possible. A highly successful "safety first" movement developed from this which spilled over to other industries and led to the creation of the National Safety Council in 1915.[4]

The "Pittsburgh Survey," a detailed study of living and working conditions in Allegheny County, Pa., done in 1907–08, had a special impact on job safety and health.[5] One of the major topics of the investigation, which was sponsored by the Russell Sage Foundation, was industrial accidents. The survey found that the injured workers and the survivors of those killed on the job bore the economic brunt of accidents, even though most were the employers' fault. The authors of the survey agreed that, for reasons of social equity, employers should bear a substantial share of the economic burden, giving them more incentive to eliminate the causes.

Workers' compensation started

Years before the Pittsburgh Survey, the idea of compensating injured workers from an insurance fund to which employers would contribute had gained a foothold in this country, though it was not at first promoted as a preventive measure. Prince Otto von Bismarck had initiated the first workers' compensation program in Germany in 1884, and the idea soon spread throughout Europe. In the United States, a few States tried to establish early compensation systems. Organized labor successfully opposed the concept, precisely because it was intended as a palliative, not a preventive measure. In 1908, Congress passed, with President Theodore Roosevelt's support, a limited workers' compensation law for Federal employees. Encouraged by this example, several States appointed study commissions. However, until the Pittsburgh Survey, compensation was treated mainly as a humanitarian measure.

The survey's call for an economic incentive to encourage accident prevention struck a responsive chord. It quickly became a key part of the rationale for workers' compensation. This seemed to tip the scales. Both labor and business rallied in support.[6] In 1911, Wisconsin became the first State to successfully establish a workers' compensation program. Within 1 year it was joined by nine other States and by 1921 most States had followed suit.

Ironically, it was as a preventive measure that workers' compensation accomplished the least. The general level of this type of insurance premium was already so low that there was no real incentive for a company to invest heavily in safety improvements to be eligible for the slightly lower rates offered firms with good safety records. Very few States included compensation for disease, although much was already known about occupational illness. Still, insurance company safety experts helped improve their clients' safety programs and the establishment of compensation gave the safety movement a moral boost.[7]

An idea that developed alongside of workers' compensation probably produced more significant long-run results. If the States would create industrial commissions with authority to establish specific safety and health regulations, it would not be necessary to go back to the legislatures and amend the factory laws in order to cover new hazards or change requirements. A workers' compensation advocate, John R. Commons of the University of Wisconsin, found this system in use in Europe and urged its adoption in the United States. Wisconsin, in another pioneering move, created the first permanent State industrial commission which developed and enforced safety and health regulations, after hearing comments from labor, management, and others.[8] This idea was widely accepted and became a guide for future State and Federal regulation of occupational safety and health.

Early Federal action

The Federal Government was relatively inactive, though not dormant, on safety and health until the era of workers' compensation. In 1790, the First Congress passed an ineffective merchant seamen's act which gave the crew of a ship at sea the right to order the vessel into the nearest port if a majority of the seamen plus the first mate believed it was unseaworthy.[9] In 1887, Congress created the Interstate Commerce Commission partly because of the large numbers of railroad workers killed or injured in train wrecks. In 1893, at the urging of the commission and the railroad unions, Congress passed the "coupler bill" which banned the notoriously dangerous link-and-pin method of coupling cars.

Industrial disease studied. After the turn of the century, the Federal Government quietly began investigation into industrial diseases. In 1903, the U.S. Bureau of Labor began publishing graphically detailed studies of death and disease in the dusty trades, as well as other safety and health topics. In 1910, the Bureau published a study by a labor law advocate, John B. Andrews, on the horrors of phosphorus necrosis ("phossy jaw"), a disfiguring and sometimes fatal disease of the jawbone suffered by workers in the white phosphorus match industry.[10] This shocking study jolted the Nation to de-

mand action. In 1912, Congress passed the Esch Act, which placed a prohibitive tax on white phosphorus matches. The Diamond Match Co. agreed to release its patented substitute for general use.

By a lucky stroke, U.S. Commissioner of Labor Charles Neill met Dr. Alice Hamilton (now considered the founder of industrial medicine in America) at a 1910 European conference on occupational accidents and diseases. Hamilton, at the time just beginning her career, was in the midst of pioneering investigations into the lead trades as director of the Illinois Occupational Disease Commission. Neill invited her to work as a special investigator for the Bureau of Labor. She accepted and until 1921 traveled around the country visiting lead smelters, storage battery plants, and other hazardous workplaces. In 1911, she published a study of the white lead industry that was the first of a series of Bureau of Labor reports known as the "Federal survey." Hamilton had a free hand but lacked authority to enter plants other than by moral suasion. She found many examples of foul conditions and gross neglect and some "remarkable instances of wise and humane employers."[11]

Department of Labor formed. In 1913, Congress created the Department of Labor and one of its main purposes was "to improve working conditions." A Senate resolution specifically called on the newly appointed Secretary of Labor, William B. Wilson, to report on industrial diseases and accidents.[12] Wilson, an ex-coal miner and mine union official, needed no prodding. A "miner" poet, Wilson described the horror of a mine disaster in this excerpt from "The Explosion," originally written in 1903:

> Stalwart men were but as feathers
> Driven with a cyclone's fire.
> Fast their flesh and sinews shriveled,[13]
> Scorched and roasted with the fire.

Under Wilson, the Bureau of Labor Statistics (formerly the U.S. Bureau of Labor) started compiling regular accident statistics in the iron and steel industry and gradually included other industries. Wilson sought to establish the principle that, instead of feeding men "into the maw of unhealthy occupations . . . the thing to do is to make the unhealthy occupations healthy."[14]

Working Conditions Service created. The entry of the United States into World War I precipitated a crisis in health and safety and conditions in the hard-pressed war production industries. To meet this challenge, Congress initiated the Working Conditions Service. The service inspected war production sites, advised companies on reducing hazards, and helped States develop and enforce safety and health standards. When the war ended, the service was allowed to expire, but the Labor Department ordered its records saved for the time "when public and legislative opinion again shall have become focused upon the necessity for a constructive organization of this character."[15]

Labor standards

Frances Perkins appointed. In 1933, President Franklin D. Roosevelt selected Frances Perkins as Secretary of Labor and first woman Cabinet member. She brought to the Labor Department long experience in occupational safety and health with the State of New York. To help assure that workplaces would be "as safe as science and law can make them," Perkins created a Bureau of Labor Standards in 1934 as a rallying point for those interested in job safety and health.[16] This was the first permanent Federal agency established primarily to promote safety and health for the entire work force. The Bureau helped State governments improve their administration of job safety and health laws and raise the level of their protective legislation.

Congress enacted three laws as part of Roosevelt's New Deal which augmented the Federal Government's role in protecting people on the job. The Social Security Act of 1935 allowed the U.S. Public Health Service to fund industrial health programs run by State health departments. This made the Public Health Service, which had begun doing industrial health studies in 1914, the national leader in this field. The Fair Labor Standards Act of 1938, which set a minimum wage and banned exploitative child labor, gave the Labor Department the power to bar workers under age 18 from dangerous occupations. The Walsh-Healey Public Contracts Act of 1936 allowed the department to ban contract work done under hazardous conditions.

Maritime rules. By the late 1950's, the Federal-State partnership which Frances Perkins had cultivated was no longer adequate to deal with growing threats to workers' safety and health, so gradually the Federal Government took a more prominent role. In 1958, Congress passed a seemingly minor amendment to the Longshoremen's and Harbor Workers' Compensation Act. It gave the Labor Department authority to set safety and health standards for the very small work force covered under this law. In addition to protecting workers in one of the Nation's most hazardous industries, the amendment closed "the last remaining 'no man's land' " in safety enforcement. The Secretary of Labor was authorized to seek penalties against willful violators, but not against those who only carelessly broke the rules. After holding public hearings, the department began enforcing standards in 1960. Compliance was good, and the high accident rates declined sharply.[17]

In December 1960, shortly after the congressionally ordered maritime rules became effective, the department issued on its own a set of mandatory safety and health standards under the Walsh-Healey Act. The department had previously issued most of these standards in a "Green Book" of informal guidelines to aid Federal and State inspectors. States had been encouraged to inspect Federal contractors and enforce their own rules. Now they were barred from applying their standards and had to enforce the Federal rules instead. For the first time, the Federal occupational safety and health requirements were applied to the whole range of industry.[18]

The new rules were not popular. Because there had been no hearings or prior announcement, labor and industry were caught by surprise and miffed that they had not been consulted. Business protested strongly to the Labor Department against making the rules mandatory. The National Safety Council deplored this "monumental set of rigid regulations."[19] The department took the criticisms to heart, and in October 1963 it announced proposed revisions, with hearings held in March 1964.

Business opposition had been building up for 3 years and reached a peak at the hearings.[20] They ran for 2 weeks, and the transcript filled 1,347 typed pages. More than 100 witnesses appeared, mostly from industry. Business felt that the new rules were not only illegal, but also technically deficient and would inhibit innovation. By substituting Federal for State regulations, the Labor Department generally undermined State safety programs, it was argued. Business also felt that the new policy weakened its own long-established pattern of voluntary safety efforts.

Coordination of programs. The powerful wave of criticism that climaxed at the 1964 hearings prodded the Department of Labor into a serious examination of all its safety programs in order to develop a more coordinated safety and health policy. A study by an outside consultant found in the department a fragmented collection of safety programs and laws. It recommended consolidation of all these safety programs under a single agency, which was done somewhat in 1966.[21]

A movement to protect the natural environment from the ravages of mankind and technology began growing while the Labor Department was seeking to improve and expand its protection of workers' safety and health. Large-scale Federal air and water pollution control programs were developed, helping to increase awareness and concern about the occupational environment.

Spurred by this movement, in 1965 the Public Health Service produced a report, "Protecting the Health of Eighty Million Americans," which outlined some of the recently found technological dangers. It noted that a new chemical entered the workplace every 20 minutes, that evidence now showed a strong link between cancer and the workplace, and that old problems were far from being eliminated. The report called for a major national occupational health effort centered in the Public Health Service.

The AFL–CIO urged President Lyndon Johnson to support the report's recommendations. On May 23, 1966, Johnson told a meeting of labor reporters that "the time has . . . come to do something about the effects of a workingman's job on his health." The Departments of Labor and Health, Education and Welfare promptly set about to develop legislation for such a program. A joint task force was then to combine both departments' ideas and submit a proposal to the President. However, Labor and HEW could not agree on which department would control a national program and by late 1966 the task force was deadlocked.[22]

Mining tragedy breaks deadlock. In 1967, it was revealed that almost a hundred uranium miners, an abnormally high number, had died of lung cancer since the 1940's. Up to a thousand more such deaths were expected. In 1947, when large-scale uranium mining was getting underway, the Atomic Energy Commission discovered that radiation levels in these mines were dangerously high. The Commission, in cooperation with the Public Health Service, began a long-term health study of the miners. A number of Federal agencies had limited jurisdiction over uranium mines, but none had clear responsibility for them, and there was very little enforcement.

The lack of action took on tragic overtones with the revelations of 1967, and public attention focused on the Federal Radiation Council. Created in 1959 to advise the President on protective measures to take against all types of radiation hazards, the council was composed of representatives from concerned agencies. In 1967, it had just completed a study of the uranium mines and was expected to recommend a standard shortly. However, when the council met on May 4, 1967, it became deadlocked between a standard that the Atomic Energy Commission recommended and a tougher one preferred by the Labor Department.[23]

The next day, Secretary of Labor Willard Wirtz, impatient with inaction, announced a bold step. Previously, Wirtz had been reluctant to act because he felt that uranium mining was not properly a Department of Labor area. However, without holding public hearings, Wirtz adopted under the Walsh-Healey Act the standard he had unsuccessfully advocated before the Federal Radiation Council.[24]

This move had a decisive impact on the shaping of a national job safety and health program in 1967, as the Departments of Labor and HEW promoted their competing proposals. The Bureau of the Budget accepted the Department of Labor's recommendations.[25]

Johnson bill fails

In January 1968, President Johnson called on Congress to enact a job safety and health program virtually identical to that developed by the Labor Department. Johnson said it was "the shame of a modern industrial nation" that each year more than 14,000 workers were killed and 2.2 million injured on the job. Citing inadequate standards, lagging research, poor enforcement of laws, shortages of safety and health personnel, and a patchwork of ineffective Federal laws, Johnson argued that a comprehensive new law was needed.[26]

The Johnson proposal, quickly introduced as legislation, gave the Secretary of Labor the responsibility of setting and enforcing standards to protect 50 million workers. The bill also had a general duty clause requiring employers to "furnish employment and place of employment which are safe and healthful." It gave inspectors legal authority to enter workplaces without management's permission or prior notice. Violators could be fined or jailed, and the Secretary could blacklist transgressors who held government contracts. The Labor Department would help interested States to develop their own programs in lieu of the Federal one. The Department of HEW would provide the Labor Department with scientific material for new safety and health standards.

Congressional committee hearings on the Johnson proposal began in February 1968.[27] Secretary of Labor Wirtz, who led off the hearings, cited two casualty lists facing America at that time: the military toll in Vietnam—and the industrial toll at home. Wirtz claimed that 3 of 4 teenagers entering the work force would probably suffer one minor disabling injury or more during their worklife. He also displayed shocking photographs of gory industrial accident scenes. Wirtz felt that the main issue was "whether the Congress is going to act to stop a carnage" which continues because people "can't see the blood on the food that they eat, on the things that they buy, and on the services they get."[28]

The proposal aroused opposite strong reactions. Organized labor supported the bill. George Meany, AFL-CIO president, headed a long list of union witnesses at the congressional hearings. A noted occupational health researcher, Irving R. Selikoff, of the Mt. Sinai School of Medicine, and consumers' advocate Ralph Nader added their voices in support. However, industry, led by the U.S. Chamber of Commerce, vehemently opposed the broad powers which would be given to the Secretary of Labor. Industry campaigned hard against a "crash program" that would undermine the rightful role of the States.

Ironically, the Labor Department itself may have hurt the bill's chances. In March 1968, it published the booklet, "On the Job Slaughter," containing gory photographs similar to those Secretary Wirtz had displayed when testifying. When industry found out that many of the pictures were 20 to 30 years old, it accused the Labor Department of deception.

The Johnson proposal failed in 1968. President Johnson's decision not to run for re-election, domestic violence in the inner cities, demonstrations against the Vietnam War—these and many other events diverted congressional and national attention from dealing with workers' safety and health. The bill never came to a vote in Congress.

Safety and health board proposed

By 1969, the idea of a general job safety and health law had taken hold. Beginning in 1965, Congress passed several laws protecting various groups of workers. The Service Contracts Act of 1965 and the Federal Construction Safety and Health Act of 1969 provided missing links in the protection of Government contractor employees. The 1966 Metal and Non-metallic Mine Safety Act protected noncoal miners. A mine explosion in 1968 causing 78 deaths in Farmington, W. Va., spurred Congress to pass the Coal Mine Health and Safety Act of 1969.

In this context of Federal action, President Richard Nixon presented his version of a comprehensive job safety and health program to Congress in August 1969. After his inauguration, he had called on his Cabinet departments to sift through his campaign speeches for election-year promises. They were to report to him on what they were doing to meet these pledges. Under Secretary of Labor James D. Hodgson,[29] who was particularly interested in workers' safety and health, was "delighted" to find that in a speech in Cincinnati, the Presidential candidate had called for Federal action on that problem. The White House asked Hodgson to prepare a bill, and he began work immediately, consulting extensively with labor and management.[30]

The Nixon Administration's proposal bypassed the question of whether Labor or HEW should have control and offered instead a five-person board that would set and enforce job safety and health standards. The Labor Department would be limited to inspecting workplaces and HEW would do research. Nixon emphasized use of existing efforts by private industry and State governments. The main Federal concern would be with health research and education and training, and only secondarily with direct regulation.[31]

Legislation embodying the Nixon proposal was introduced in Congress and for the second consecutive year hearings began on a national job safety and health program. Hundreds of witnesses from labor, industry, government, and the safety and health community gave thousands of pages of oral and written testimony. In addition to hearings in Washington, there were field

hearings around the country at which rank-and-file workers in steel mills, automobile plants, and other industries testified.[32]

Secretary of Labor George Shultz emphasized at the hearings that the Nixon bill was part of a continuous historical process. Secretary Shultz believed that a consensus had finally evolved on both the need for a Federal law and its general form. He exhorted Congress to "work out our differences and get something done."[33]

Labor opposes, business applauds

This turned out to be easier said than done. Democratic Congressmen, and some Republicans, raised strong objections to the bill. Many felt that, with two departments already involved, a safety board would create administrative confusion. Labor union supporters opposed any such board and wanted the programs lodged in the Labor Department. The proposed enforcement scheme came under fire because it only penalized willful, flagrant violators. Critics felt that this would take away much of the deterrent effect, because employers would be tempted to ignore Federal safety and health standards until after they were inspected. Exemptions of small employers, a 3-year delay in the bill's effective date, and a reliance on "consensus" standards devised by industry groups also drew Democratic opposition.

Organized labor had enthusiastically backed the Johnson bill, but it completely opposed the Nixon proposal. It agreed with congressional critics that the Labor Department was the proper locus of authority over safety and health. Unions felt that strong action was needed to deal with the hazards of the workplace, especially alarming new chemical dangers. As Anthony Mazzocchi of the Oil, Chemical and Atomic Workers union put it: "The mad rush of science has propelled us into a strange and uncharted environment . . . . We grope in the dark and we can light only a few candles."[34]

Buried in the battle of witnesses for and against the Nixon proposal were some thought-provoking comments by Irving Selikoff. He described the suffering of construction workers who succumbed to asbestosis from applying asbestos insulation in buildings. Refusing to blame any one group, he asked rhetorically, "Who killed Cock Robin?" Selikoff's answer was: "No one . . . . His has been an impersonal, technological death . . . . We have all failed."[35]

In a crucial switch, the U.S. Chamber of Commerce, which had led the fight against the Johnson proposal, came out in favor of the Nixon bill. The National Association of Manufacturers and other industry groups added their support. The main reason for the chamber's switch was President Nixon's proposal to put a special safety and health board in charge of the Federal program, instead of giving the Labor Department that duty, as the Johnson proposal would have done. Business also was impressed with the fact that the Administration had listened to industry's views in drafting the legislation. Behind the change of heart was acceptance by business that, while the idea of Government regulation of conditions in the workplace was distasteful, some kind of safety and health law was inevitable.

A seesaw battle

Early in 1969, two Democrats, Representative James G. O'Hara of Michigan and Senator Harrison Williams, Jr., of New Jersey had presented bills that were similar to the Johnson proposal of 1968. Despite Republican efforts in 1970 to bottle up the bills in committee, they—and not the Nixon bill—were introduced on the floors of the House and Senate shortly before the congressional elections. Opponents succeeded in delaying consideration of these labor-backed measures until after the election, in hopes that it would prevent passage.

The strategy was partially successful. In the Senate, the first to act in the post-election "lameduck" session, Republicans offered an amendment substituting the Nixon proposal for the Democratic measures and came just two votes short of succeeding. With the division this close, compromise seemed likely. Senator Jacob Javits, New York Republican, offered an amendment under which the Secretary of Labor would set safety and health standards, and a separate commission would oversee Labor Department enforcement, serving as a kind of court of appeals for parties who disagreed with the Secretary's decisions. Senate Democrats and the Nixon Administration supported the compromise and the Senate passed it.

In the House, a grassroots effort which the Chamber of Commerce waged against the Democratic proposal during the election campaign drained off some support. Republican William R. Steiger of Wisconsin offered an Administration-backed bill to substitute for the O'Hara bill introduced earlier in the year. In a major defeat for labor, which had stoutly resisted any efforts at compromise, the Steiger amendment passed easily and a House-Senate conference committee met to hammer out the differences between the two bills.

However, the odds were now stacked in labor's favor. The conference committee members reflected the liberal views of the Democratic House and Senate committee chairmen who selected them. When the conferees met in December, they adopted the more liberal Senate bill almost unchanged. The only significant point on which the Senate yielded was deletion of a provision allowing the Secretary of Labor to close down a plant under conditions of imminent danger. The Senate immediately approved the measure and sent it on to the House. When Secretary of Labor Hodgson announced that President Nixon approved of the bill, Republican oppo-

nents in the House abandoned plans to fight the conference committee version, and it passed easily.

ALL SIDES PRAISED the final bill. President Nixon lauded it as a significant piece of social legislation. Although he disagreed with specific provisions, he believed that it would help attain "the goal we all want to achieve"—the protection of Americans on the job. The Chamber of Commerce termed it "a substantial victory" for those in industry seeking a fair yet effective law. AFL-CIO President George Meany called it "a long step . . . toward a safe and healthy workplace."[36]

President Nixon signed the milestone Occupational Safety and Health Act of 1970 in a ceremony at the Labor Department. George Meany and other labor figures, leaders in the business community, and prominent members of Congress were present. The ceremony ended the bitter 3-year legislative struggle on a note of harmony and bipartisanship. It marked the culmination of a historical movement that first found expression in the Massachusetts factory act of 1877. □

FOOTNOTES

[1] Employees protected by other Federal occupational safety and health laws are excluded from coverage, as are State and local government employees, but participating States provide comparable coverage. These States and territories are South Carolina, Oregon, Utah, Washington, North Carolina, California, Minnesota, Maryland, Tennessee, Iowa, Kentucky, Alaska, Virgin Islands, Michigan, Vermont, Hawaii, Nevada, Indiana, Wyoming, Arizona, New Mexico, Virginia, Puerto Rico, and Connecticut.

[2] Massachusetts Bureau of Statistics of Labor, *Annual Report,* 1872, pp. 421–25; Massachusetts Bureau of Statistics of Labor, *Annual Report,* 1870, p. 197; and John R. Commons and John B. Andrews, *Principles of Labor Legislation* (New York, Harper and Brothers, 1916), pp. 327–28.

[3] William B. Hard, "Making Steel and Killing Men," *Everybody's Magazine,* November 1907.

[4] U.S. Bureau of Labor Statistics, Bulletin, 428, "Proceedings of the Industrial Accident Prevention Conference," 1926, pp. 35–36; David S. Beyer, "Safety Provisions in the United States Steel Corporation," in Crystal Eastman, ed., *Work Accidents and the Law* (New York, Charities Publication Committee, 1910), pp. 244–45; David Brody, *Steelworkers in America, the Nonunion Era* (New York, Harper and Row, 1969), pp. 166–68.

[5] Eastman, *Work Accidents and the Law.*

[6] Roy Lubove, "Workmen's Compensation and the Prerogatives of Voluntarism," *Labor History,* Fall 1967. James Weinstein, "Big Business and the Origins of Workmen's Compensation," *Labor History,* Spring 1967, pp. 162–70.

[7] Lubove, pp. 278–79; Robert Asher, "Radicalism and Reform: Workmen's Compensation in Minnesota, 1910–1930," *Labor History,* Winter 1973, p. 36; Herman M. and Anne R. Somers, *Workmen's Compensation: Prevention, Insurance, and Rehabilitation of Occupational Disability* (New York, John Wiley & Sons, 1954), pp. 333–35.

[8] Commons and Andrews, *Principles of Labor,* pp. 430–36; Gordon M. Haferbecker, *Wisconsin Labor Laws* (Madison, University of Wisconsin Press, 1958), pp. 20–23.

[9] Henry W. Farnam, *Chapters in the History of Social Legislation in the United States to 1860* (Washington, Carnegie Institution, 1938), pp. 242–46.

[10] C. F. W. Doehring, "Factory Sanitation and Labor Protection," U.S. Bureau of Labor Bulletin 44, 1903; John B. Andrews, "Phosphorus Poisoning in the Match Industry in the United States," U.S. Bureau of Labor Bulletin 86, 1910.

[11] Alice Hamilton, *Exploring the Dangerous Trades* (Boston, Little, Brown and Co., 1943), pp. 7, 121–29.

[12] S. Res. 68, 63d Cong., *Congressional Record,* Vol. 51, p. 11395.

[13] *New York Herald Tribune,* Dec. 28, 1913.

[14] Letter, William B. Wilson to John B. Andrews, Nov. 13, 1914, Secretary of Labor files, National Archives.

[15] U.S. Department of Labor, *Annual Report,* 1919, pp. 198–204.

[16] Frances Perkins, *People at Work* (New York, John Day Co., 1934), p. 50; Arthur W. MacMahon and John D. Millett, *Federal Administrators* (New York, Columbia University Press, 1939), p. 372.

[17] Assistant Secretary of Labor, John J. Gilhooley, Mar. 20, 1958, in U.S. Cong., Senate Committee on Labor and Public Welfare, Hearings on "Amending Longshoremen's and Harbor Workers' Compensation Act" (Washington, 1958), pp. 13–17; U.S. Department of Labor, *Annual Report,* 1960, p. 192; U.S. Department of Labor, "Maritime Safety Program, Five Year Report, 1960–64."

[18] U.S. Department of Labor, "Walsh-Healey Public Contracts Act, Basic Safety and Health Requirements," Mar. 2, 1942 (Washington, 1943); *Federal Register,* Dec. 28, 1960, pp. 13809–25.

[19] Letters from Walter Reuther to Secretary of Labor Arthur Goldberg, Dec. 21, 1961, John B. Olverson, Jan. 26, 1961, and G. C. Stewart, Oct. 9, 1961, Secretary of Labor files, National Archives.

[20] U.S. Department of Labor, Public Hearing on Proposed Revision of Safety and Health Standards for Federal Supply Contracts," Mar. 17–27, 1964, Department of Labor Library.

[21] Thomas A. Chittenden, "A Study of Occupational Safety Responsibility of the Department of Labor" (Washington 1964), pp. 1, 2, 53–58; Secretary of Labor's Order 12–66, July 19, 1966.

[22] "White House, 1967 Legislation (Task Force on Occupational Health and Safety)," folder, Secretary of Labor files, National Archives.

[23] Federal Radiation Council Meeting, May 4, 1967, Secretary of Labor files, National Archives.

[24] Department of Labor Press Releases, May 5, May 9, 1967, Departmental Historian's Office.

[25] Letter, David Swankin to Assistant Secretary of Labor Esther Peterson, Nov. 3, 1967, Secretary of Labor files, National Archives.

[26] Lyndon Johnson, "President's Message to Congress on Manpower and Occupational Safety and Health Programs," Jan. 23, 1968, *Weekly Compilation of Presidential Documents,* Vol. 4, No. 4, pp. 110–11.

[27] U.S. Cong., House Committee on Education and Labor, Hearings on "Occupational Safety and Health" (Washington, 1968); U.S. Cong., Senate Committee on Labor and Public Welfare, Hearings on "Occupational Safety and Health Act of 1968" (Washington, 1968).

[28] 1968 Senate Hearings, p. 62.

[29] James D. Hodgson was Under Secretary while George P. Shultz served as Secretary of Labor from 1969 to mid-1970. When Shultz left, Hodgson was appointed Secretary and served until 1973.

[30] James D. Hodgson, interview with author, June 12, 1979.

[31] Richard Nixon, "Occupational Safety and Health Message to Congress," Aug. 6, 1969, *Weekly Compilation of Presidential Documents,* Vol. 5, No. 32.

[32] U.S. Cong., House Committee on Education and Labor, Hearings on "Occupational Safety and Health Act of 1969," (Washington, 1970); U.S. Cong., Senate Committee on Labor and Public Welfare, Hearings on "Occupational Safety and Health Act of 1970" (Washington, 1970).

[33] 1969 House Hearings, pp. 312–413.

[34] Ibid., pp. 1181, 1194.

[35] 1970 Senate Hearings, pp. 1078–79.

[36] *The New York Times,* Dec. 18, 1970.

Understanding statistics on occupational illnesses

The reliability, validity, and use of data on work-related illnesses are better understood if one is aware of the peculiarities of the recordkeeping regulations and problems of recognizing and reporting occupational diseases

HARVEY J. HILASKI

Of major importance to the American worker was the explicit declaration in the Occupational Safety and Health Act of 1970 of congressional intent " . . . to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources." An important first step in providing such an environment is developing statistics which capture the incidence of illness and injury in the United States. How well do the presently collected statistics do this? What obstacles does the process of collecting good statistics face?

Under the act, the Bureau of Labor Statistics has been delegated responsibility for the collection, compilation, and analysis of occupational safety and health statistics. Pursuant to that authority, the BLS, in cooperation and consultation with the Occupational Safety and Health Administration (OSHA), the American National Standards Institute, Labor and Business Research Advisory Committees, and a Federal interagency working group, developed an occupational injury and illness recordkeeping system. Final recordkeeping regulations were adopted on July 2, 1971. Several modifications to the regulations have been made, but the basic structure has remained intact.

Before OSHA was established, the work-injury program of the BLS was based on the American National Standard Method of Measuring and Recording Work Injury Experience, commonly referred to as the Z16.1 standard. This standard, for all practical purposes, was limited to the measurement of work injuries; seldom were occupational illnesses reported. It was believed that the Occupational Safety and Health Act, with equal emphasis on occupational health, would provide a true and statistically confirmed picture of the incidence of occupational illnesses and diseases. But, what has emerged is a count of occupational illnesses and diseases which is superior to that of previous programs, but which is viewed as a gross underestimate of actual experience.

This article examines the concepts of the statistical system which produces estimates of occupational illnesses and diseases in the United States,[1] discusses some of the reasons for an undercount in those estimates, and evaluates the statistical system in its present form.

Measurement peculiarities

Three Federal Government agencies manage recordkeeping and reporting systems which measure occupational illnesses in the private sector: the Bureau of Labor Statistics and the Mine Safety and Health Administration, both of the U.S. Department of Labor, and the Federal Railroad Administration of the Department of Transportation.[2] The BLS, on behalf of OSHA, administers a statistical program covering most of the

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private sector economy. The exclusions are coal and metal and nonmetal mining industries which are covered by the Mine Safety and Health Administration, and the railroads which are under the Federal Railroad Administration's jurisdiction. However, these establishments maintain data consistent with OSHA's work injury and illness definitions and concepts. Each year, Mine Safety and Health Administration and the Federal Railroad Administration injury and illness data are combined with the BLS data to provide a measure of health and safety conditions in the total private sector.

Several aspects peculiar to the recordkeeping and reporting of occupational illnesses under these systems warrant discussion because of their impact on the reliability, validity, and use of the data. First, reporting by employers under each system is governed by regulation. The mandatory nature of reporting together with the uniform definitions help ensure the reliability of the information.[3] However, nonsampling biases can occur and problems unique to occupational illness statistics can impose other serious difficulties, some of which are discussed later. Second, whether an illness is occupational and, therefore, recordable is determined by the employer or representative physician or nurse. Unless the cause-effect relationship is direct and apparent, the illness is not likely to be recorded. Third, the survey covers a stated calendar year; hence, only new illnesses occurring during that year are recordable. The OSHA regulations require only that employers record illnesses at the time of diagnosis. Occupational illnesses which persist are not counted in subsequent years. The standard measurement used for comparative trend evaluation is the incidence of occupational illnesses, expressed as a rate per 100 workers. Prevalence of illnesses (the proportion of employees occupationally ill, regardless of when the condition arose), is not used in the reporting or dissemination of the data. Fourth, seven categories of illnesses are distinguished in employer reports: (1) skin diseases or disorders; (2) dust diseases of the lungs; (3) respiratory conditions due to toxic agents; (4) poisoning; (5) disorders due to physical agents; (6) disorders associated with repeated trauma; and (7) all other occupational illnesses. Incidence rates are developed by major industry division for each of these categories. Fifth, employers are not required to report illnesses by age, sex, race, or occupation, although employers have information on most of these variables. Sixth, regulations specifically require that employers record "bodily harm including adverse health effects resulting from a one-time exposure event" as an occupational injury and not as an illness.

Incidence of illnesses understated

Is the measurement of occupational illnesses a numbers game? A review of historical data lends perspective to this query. Throughout the 1972–78 period, the proportion of illnesses to total injuries and illnesses in the private sector was relatively fixed at 3 percent. (See table 1.) Over the period, the number of illnesses declined by nearly one-third, from 210,500 to 143,500, and the overall incidence rate was halved. By comparison, the total injury and illness rate dropped 15 percent. This number and trend are contrary to the widespread belief regarding actual conditions in the Nation's workplaces. The bottom line of this common but unsubstantiated belief is that there are about 390,000 new illness cases annually.[4]

Over the 1972–78 period, declines occurred in every illness category, except "respiratory conditions due to toxic agents." (See table 2.) The largest decline (about 62 percent) was for "all other occupational illnesses." Throughout the period, "occupational skin diseases or disorders" accounted for two-fifths or more of all occupational illnesses, indicating that illnesses likely to be recorded are those that are highly visible, have little or no latency, and are less controversial. Employers and employee awareness of the toxicity of chemicals might be inferred from the relatively steady increase in reported cases of "respiratory conditions due to toxic agents." Although the proportion of these cases nearly doubled over the period, its relative ranking remained the same.

In sharp contrast to the much publicized and frequently quoted occupational illness death estimate of 100,000 annually,[5] BLS data indicate that over the 1972–78 period, deaths from occupational illnesses ranged from 300 (in 1972, 1973, and 1976) to 700 in 1974. This is plausible, considering the criteria for recording occupational illnesses and the types of nonfatal illnesses reported.

Table 1. Occupational illnesses as a proportion of total injuries and illnesses in the private sector, 1972–78

Year	Total injuries and illnesses [1]		Illnesses only [1]		Illnesses as a percent of total injuries and illnesses
	Number (in thousands)	Rate [2]	Number (in thousands)	Rate [2]	
1972 [3]	5,657	10.9	211	.40	.037
1973	6,079	11.0	201	.40	.033
1974	5,916	10.4	[4] 200	[4] .40	.034
1975 [5]	4,992	9.1	164	.30	.033
1976 [5]	5,164	9.2	168	.30	.033
1977 [5]	5,460	9.3	162	.28	.030
1978 [5]	5,799	9.4	144	.20	.025

[1] Includes fatalities.

[2] The incidence rate represents the number of injuries and/or illnesses per 100 full-time workers and is calculated as follows: (N/EH) × 200,000, where:

N = number of injuries and/or illnesses
EH = total hours worked by all employees during the calendar year
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[3] Excludes railroads and mine activities, except oil and gas extraction.

[4] Excludes illness data for Mine Safety and Health Administration covered industries.

[5] Excludes firms with fewer than 11 employees.

Table 2. Occupational illnesses in the private sector, by category of illness, 1972–78

Category of illness	Number (in thousands)							Percent						
	1972	1973	1974	1975	1976	1977	1978	1972	1973	1974	1975	1976	1977	1978
Total illnesses[1]	[2]210.5	200.5	[3]200.4	[4]163.8	[4]167.9	[4]161.9	[4]143.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Occupational skin diseases or disorders	86.5	89.2	89.4	74.4	71.6	73.0	65.9	41.1	44.5	44.6	45.6	42.6	45.1	45.9
Dust diseases of the lungs	1.4	1.5	1.7	1.0	1.2	2.0	1.6	0.7	0.7	0.8	0.6	0.7	1.2	1.1
Respiratory conditions due to toxic agents	10.2	11.5	12.7	11.9	13.1	13.1	13.6	4.8	5.7	6.3	7.3	7.8	8.1	9.5
Poisoning	6.4	6.7	7.4	6.2	6.1	5.7	5.6	3.0	3.3	3.7	3.8	3.6	3.5	3.9
Disorders due to physical agents	30.1	27.5	27.1	21.2	24.2	23.6	16.7	14.3	13.7	13.5	13.0	14.4	14.6	11.6
Disorders associated with repeated trauma	23.8	23.6	24.6	23.7	23.0	23.4	20.2	11.3	11.8	12.3	14.5	13.7	14.5	14.1
All other occupational illnesses	52.1	40.5	37.4	24.9	28.8	21.1	19.9	24.8	20.2	18.7	15.2	17.2	13.0	13.9

[1] Includes fatalities. Because of rounding, components may not add to totals.
[2] Excludes railroad and mine activities, except oil and gas extraction.
[3] Excludes illness data for Mine Safety and Health Administration covered industries.
[4] Excludes firms with fewer than 11 employees.

So vastly divergent are actual estimates of occupational illnesses obtained through direct survey of employers from those based on other indirect estimating methods that a review of the problems associated with measuring occupational illnesses is warranted. Because of the complexity of the issues involved, this review is likely to create uncertainties about the validity of any count of occupational illnesses; but, it should lend some credence to the widespread assumption that the current national statistics understate the incidence of occupational illnesses.

Cause-effect relationship elusive

Occupation can be related to disease in three basic ways: as a cause; as a contributing factor; or as an aggravating factor. Except in very rare disease cases, such as mesothelioma from asbestos exposure and angiosarcoma from exposure to vinyl chloride, a cause-effect relationship between the disease and the work environment is not so uniquely evident. Generally, the relationship of an illness to an occupation is elusive because most occupational diseases are clinically indistinguishable from general, chronic-type diseases of nonoccupational origin. Even when occupation is considered to be contributory or aggravating, it is difficult to determine the extent of job influence because, in most cases, the causes of the disease cannot be fully traced; a multiplicity of factors may be involved, including the age of the worker, diet and nutrition, smoking, and general life style, to name a few.

There are numerous and complex issues surrounding the identification and recognition of occupational diseases. A brief description of some of the major problems can provide deeper insight into why current occupational illness statistics are often assessed as understating the true health and safety conditions of the workplace.

Etiology. Determining the cause or causes of disease is not always easy and is even more difficult when the disease is suspected of originating in the work environment. Even for cancer cases where undisputed exposure to carcinogenic agents in the work environment has occurred, "the lack of histological or biological markers of cancer of specific organs has made it difficult to differentiate occupational cancer from cancer from other causes."[6] Harmful exposure can occur on and off the job; while it would be ideal to be able to assign a factor to the degree of influence of occupational and nonoccupational exposures, this is not yet possible. The cause of occupational disease is further clouded by lack of knowledge of "dose-response" relationships. The effects of toxic substances are based primarily on animal tests, the results of which are not easily extrapolated to human populations. Epidemiological study can also aid in establishing a hypothesis of the causes of occupational diseases but cannot lead to direct cause-effect association.

Symptoms. The relationship between occupation and disease is unlikely to be inferred from a study of a worker's symptoms. Although a worker may have one or more symptoms that suggest an occupational relationship, there is a reluctance to declare the disease as occupational in origin for lack of solid evidence. On the other hand, symptoms may point to a specific disease, but the disease onset and the present condition of the worker may be obscured by other factors, especially in respiratory disease cases. It would be unrealistic to expect employers to accept responsibility for a disease condition which is also affected by the general environment and nonwork-related factors, unless the evidence overwhelmingly points to the work environment as the source. Even in cases properly diagnosed as occupationally related, the employer may be reluctant or refuse to accept liability, because the disease may have originated in the past under a different employer. The time lags between exposure, onset, and diagnosis will generally present serious problems regarding proper accountability.

Latency. The long latent periods of certain diseases obscure the cause-effect relationship and also impede timely recognition of the disease for recordkeeping purposes. For example, occupational cancer may be

detected only after the worker has left the hazardous work environment or has retired; if after retirement, it is unlikely to be attributed to a past occupation. Under these circumstances, a legitimate occupational disease case would not be included in the statistics because of the restrictive recordability criteria.

The latent periods of disease have important implications for conducting epidemiological studies of morbidity and mortality, the results of which may identify populations at excess risk of specific diseases. Adequate follow-up of retirees, living and deceased, is required to avoid drawing false conclusions.

Diagnostic problems. Lack of medical expertise is a genuine obstacle to detection and recognition of occupational disease. Most doctors engaged in the practice of occupational medicine (particularly those outside the industrial setting) are not sufficiently trained to qualify for certification.

Presently about 15 universities and medical centers offer programs in occupational medicine or occupational health nursing, or both. The National Institute for Occupational Safety and Health has incorporated 12 institutions into a special program of accelerated training in occupational health and safety, called the Educational Resource Centers Program.[7] These centers are located throughout the United States and provide academic and continuing educational programs in four core occupational safety and health disciplines—occupational medicine, occupational health nursing, occupational safety, and industrial hygiene. With the extensive worker and establishment coverage under the act and the large potential for unhealthful exposure due to the thousands of chemicals manufactured or in use in industry today, quick remedy for the shortage of expertise should not be expected.

Unfortunately, there are no reliable data on the number of occupational doctors, but fragmentary evidence suggests about 1,000 to 2,500. Occupational doctors working in an industrial setting are in a unique position to monitor the health of workers, if they have access to pertinent records, including information on chemical substances in use, measurement results of exposure levels, and inplant laboratory analyses of industrial hygienists.

On the other hand, few doctors in private practice have a background in occupational medicine and are much less likely to be aware of the influence of a job on a worker's health. Even if private practitioners did have such training, they may not know precisely what unhealthful exposures their patients encounter in the workplace. Also, the number of patients seeking treatment from an identical place of employment and with the same symptoms may be too small for the doctor to make an occupational connection. Finally, the doctor relies on the patient's account of the condition, and, as a result, occupational relationship is likely to be overlooked.

Another factor limiting a doctor's ability to identify and recognize an occupational relationship of an illness is use of rather standard diagnostic techniques when, in fact, different techniques may be warranted. An estimated 63,000 chemicals are believed to be in use in the United States and about 1,000 new chemicals are added each year, most without having been tested for their health effects before manufacture or use.[8] Therefore, it is not surprising that a lag in appropriate diagnostic techniques is existent and real. In addition, incomplete or carelessly taken medical and job histories of ill workers can lead to wrong impressions concerning the workers' health status and origin of symptoms or disease.

Employee awareness. Lack of awareness among employees regarding hazardous exposures inhibits their identifying and recognizing a disease as occupational. This is especially true in cases where the doctor relies on the patients' account of the work environment. Failure to mention possible influences of the workplace, for whatever reason, would seldom induce an independent probe on the doctor's part. In injury cases, the treating doctor is very likely to ask probing questions relating to the injury event; in the case of an illness, the same doctor is likely to ask only questions related to the patient's symptoms. The importance of this factor depends to a large extent on employer training of workers in general safety and health matters, employer notification of workers about the harmful properties of substances to which they are exposed, and employer training of the exposed group in the proper methods of handling and use of those substances.

Susceptibility. Individuals vary as to their susceptibility to disease. One worker may contract a disease at relatively low levels of exposure, while another worker may not, even if exposed to high levels of the identical substance. This confounds the cause-effect occupational relationship of diseases and indicates that even nonoccupational factors may operate in such cases.

Tolerance levels are based not only on the workers' genetic makeup but also on physiological characteristics, age, sex, nutrition, and other factors. Because of these influences, rates of absorption, distribution, metabolism, and excretion of toxic substances in the body vary among individuals. Even in the same individual, specific body organs are affected differently by toxins. While susceptibility does not directly inhibit detection and recognition of occupational disease, it has important implications for evaluating dose-response relationships, particularly in terms of health standards setting.

Multiple exposure. Cause-effect relationship is almost totally obscured when a worker is exposed to two or more hazardous substances on the job. Toxicological studies can determine probable effects of exposure to a specific substance; however, there has been little assessment of the effect of multiple exposures.

The interaction of toxic chemicals can produce unsuspected harmful effects. These synergistic and even potentiating ill effects make it difficult to determine the prime etiological agent. In fact, the chemical interaction may produce a totally new kind of toxic agent which requires special analysis for its debilitating effects.

Improvement needed

After considering the recordkeeping criteria and the factors inhibiting detection and recognition of occupational disease, one can better understand why the BLS estimates of occupational illnesses are suspected of being seriously understated. However, in this regard, three points must be emphasized. (1) Other widely publicized and quoted estimates of occupational diseases are not based on rigorous statistical techniques and fall far short of being accurate and valid descriptions of occupational illness incidence. (2) It cannot be stressed too much that mere association of an occupation with the illness of a worker is not causation; at most, it indicates areas where further research may be warranted. Therefore, studies based on such sources as the Social Security Administration's disability files or the National Center for Health Statistics' Health Interview Survey cannot establish an unequivocal causal relationship of a disability or impairment to occupation, even though the disabled or impaired person's occupation is identified in the statistics. (3) In terms of the recording and reporting of occupational illnesses, the statistics generated through the BLS annual survey are a reliable measure of real-world experience. However, in terms of statistical validity, the data may be wanting because chronic and long latent diseases, although not totally excluded, are largely beyond the scope of the system. The current system captures only disease cases that are unequivocably visible.

The problems associated with occupational disease detection and recognition are largely exogenous to the national occupational disease statistical program in effect and cannot be solved by government alone. Improvement of occupational disease statistics will require the cooperation of all affected parties. Because of the complexities involved in the occupational disease area, including medico-legal, political, economic, and privacy issues, expectations for a quick or easy solution are unrealistic as is a solution without some compromise among the affected principals—employers, workers, unions, government, and the medical profession.

To the extent that the annual survey excludes chronic and long latent diseases of occupational origin, an undercount does exist. There is as yet no reliable measure of that undercount. The only other comprehensive source of occupational disease statistics lies in State workers' compensation records. However, the same difficulties in establishing an occupational link apply to workers' compensation cases.

Perhaps the more important aspect of the controversy over occupational illness statistics concerns the usefulness of the present data, given the fact that, within the context of current regulations and procedures, they inculpably constitute a weak measure of the "suspected" total national experience. □

FOOTNOTES

[1] Occupational illness and disease are used interchangeably in this article and include all incidents which meet the following definition: "Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact."

[2] These agencies also collect occupational injury information for development of injury estimates covering the total private sector. However, occupational injury occurrence is obvious both to the employee and employer and the statistics resulting are not seriously questioned, compared with occupational illness data. Hence, the focus of this article is on occupational illnesses. Omitted from discussion are illness data covering Federal, State and local government workers.

[3] In terms of actual data collection, one major difference between the three agencies is that the Mine Safety and Health Administration and the Federal Railroad Administration cover the universe of employers under their respective jurisdictions, while BLS uses a random probability sample survey to collect data from Occupational Safety and Health Administration covered employers.

[4] The 390,000 count first appeared in *The President's Report on Occupational Safety and Health—May 1972.* Since then, it has repeatedly been cited in numerous publications and at congressional hearings. This estimate was based on a study of occupational diseases in California in 1970, through a manipulative process which was never fully documented.

[5] The 100,000 occupational death figure also appeared in *The President's Report.* According to the National Institute for Occupational Safety and Health, the data source for this figure was the 1951 Registrar General's Occupational Mortality Report for England and Wales in which excess deaths (observed versus expected) summed up over all occupations yielded an occupational disease death ratio which was applied to the U.S. workforce.

[6] Thomas F. Mancuso, *Occupational Cancer and Medical Causality,* a paper presented at the 65th Annual Convention of the International Association of Industrial Accident Boards and Commissions, Sept. 10, 1979.

[7] *Directory of Academic Programs in Occupational Safety and Health,* Department of Health and Human Services, National Institute for Occupational Safety and Health, 1979, Publication No. 79–126.

[8] *A Scientific Framework for Establishing a Consistent Federal Policy on the Evaluation of Substances as Potential Human Carcinogens,* Draft Staff Discussion Paper, Office of Science and Technology Policy, Oct. 20, 1978.

Injuries at work are fewer among older employees

Previous studies offer conflicting results in determining the age groups more prone to accidents on the job; but new data show young workers are hurt more, although often not as seriously

NORMAN ROOT

There are several contradictory interpretations of the relationship between age and injuries at work.[1] Some investigators have found no significant differences in incidence of injury among the various age groups. Others have found a higher accident rate for both younger and older groups of workers compared with those in the middle age groups. Two other researchers arrived at an opposite conclusion—workers in the intermediate groups, those age 28–47, had the highest accident rates. Still others concluded that accident frequency declined steadily with age for workers older than 25.[2]

These differing interpretations of the relationship between work injury and age have been augmented by equally contradictory reasoning. Older workers have lower accident rates because they are experienced, mature, and are mindful of workplace hazards; conversely, older workers have higher accident rates because of growing carelessness in the workplace—familiarity breeds contempt—and declining reflexes, hearing, and vision. On the other side, younger workers have higher accident rates because they are reckless, green to workplace hazards, and have the dangerous jobs; by contrast, younger workers have lower accident rates because of superior reflexes and less exposure to the more dangerous jobs requiring greater experience.

Inability to collect uniform data about exposure and incidents on any homogeneous groups of workers, either by industry or occupation, had been considered the most important reason for the divergence of these views.

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Sources and summary of findings

Based on data collected in the Bureau of Labor Statistics Supplementary Data System (SDS), this article analyzes information from more than a million workers compensation records from agencies in 30 States that participated in the SDS program during 1977. It examines the age distribution of injured workers relative to their exposure by industry and occupation, and looks at injury characteristics and costs associated with the age of the injured worker.

Two categories of cases are used in the system: closed and current. A closed case is one in which, by the end of the reference year, all compensation and medical payments due for the injury were awarded or received by the worker, regardless of the year in which the accident occurred or was reported. In a current case the injury either occurred or was reported during the reference year, depending upon the State. Most States submitted current case data; a few, only closed case data; and three States, Idaho, Montana, and Wisconsin, submitted both kinds.

The data indicate that occupational injuries occur at a lower rate to older workers than to younger ones. It appears that the frequency of occupational injuries de-

clines steadily up to age 64 and then drops even more sharply for workers age 65 and over. The data indicate the positive effect of experience in avoiding injuries and should encourage training for new workers, to reduce the occurrence of injuries in the workplace.

However, older workers do get hurt, and although in most instances their injuries generally reflect workplace hazards common to all, there are some notable differences that apparently reflect physical declines consistent with increasing years. For example, declining bodily coordination among older workers likely contributed to increasing numbers of injuries from falls on working surfaces. Moreover, a traumatic injury to an older worker would more likely result in a fractured bone than it would if the same blow were experienced by a younger worker and would result in greater severity of injury and higher cost.[3]

New methodology and data

The work injury ratios used in this article are based on the percentages of work injuries and employment within each universe: an industry or occupation. A ratio of 1.0 indicates that the percentages of injuries and employment are equal. Ratios greater than 1.0 indicate that the percentage of injuries is greater than that of employment, and ratios less than 1.0 indicate the opposite.

Relative comparisons are necessary, as opposed to numerical estimates or rates, because of limitations in age-specific industry and occupational employment data, and because of differences in State workers' compensation data. Employment data are from the 1977 Current Population Survey and may be overstated in that they include workers not covered under some State workers' compensation systems.[4] The injury data may be understated in that a comparable universe of cases is not reported in each State whose data are in this article. The 26 States providing current case data accounted for 40 percent of national wage and salary employment during 1977 and are geographically and industrially fairly representative of the Nation.[5]

Despite the limitations, the data permit the first comprehensive examination of age as it relates to injuries at work.

Among employees age 16 and over in 1977, the largest proportion of work-related injuries, 30.3 percent, occurred to workers age 25–34, the same group with the largest percentage of the total number of workers, 26.4 percent. Workers age 16–24 accounted for nearly the same share of injuries, 29.7 percent, but only 23.7 percent of total employment. Of this group, workers age 20–24, comprised 6 of 10 employed and 7 of 10 injured. For age 35 and over, the proportions of injuries for each age group were less than the proportions of employment.

Based on age-specific ratios of work injury to employment, work-injury rates apparently would be highest for workers age 20–24 and lowest for those age 65 and over. (See table 1.)

The pattern is similar for all industry divisions except finance; insurance; and real estate; and for services where the percentages of injuries are less than those of employment among workers age 25–34, but higher for workers age 55–64. These are the only industries in which the injury ratios are above 1.0 for this older age group. (See table 2.)

The overall age and injury employment pattern, although similar for the occupational groups, has a few notable differences. For the age group 16–24, the injury to employment ratios did not exceed 1.0 among transport operatives, probably because of age and experience requirements. The ratios for 16–24 year-olds also did not exceed 1.0 among nonfarm laborers, farm laborers and foremen, and service workers. This probably indicates that many of these jobs, particularly for young workers, are frequently casual, part time, or in small establishments, factors that are the basis for exemption from workers' compensation coverage in many States.

Age and length of service

The age of an injured worker is strongly correlated with length of service. More than 40 percent of injuries to workers under age 35 occurred among those in the first year of employment.[6]

Other researchers have noted the same relationship in studies of specific industries, occupations, or work activities. For example, one study found that in accidents arising from manual handling in the construction industry, " . . . in 60 percent of the cases the incidents occurred during the first year of employment."[7]

Workers under age 35 accounted for 60 percent of the injuries and 50 percent of employment, and likely accounted for the largest numbers of new entrants on the job in any one year. Thus, high injury rates for this

Table 1. Work-injury ratios by age[1]

Age	Percent employment distribution[2]	Percent work injury distribution	Work injury ratio[3]
16–17	3.2	1.9	.59[4]
18–19	5.3	6.8	1.28
20–24	15.2	21.0	1.38
16–24	23.7	29.7	1.25
25–34	26.4	30.3	1.15
35–44	18.7	16.7	.89
45–54	17.6	13.6	.77
55–64	11.4	8.8	.77
65+	2.2	0.9	.41[4]

[1] Based on current cases in 26 States. Includes illnesses.
[2] Industry employment source CPS data, 1977.
[3] The ratio computation is column 2 divided by column 1.
[4] Because of the relatively small magnitudes associated with one or both components in these ratios, the relative errors for these age groups would be larger than those for the other age groups.

Table 2. Ratios of work injury to employment percentages, by industry and age, 1977

Industry	Total all years	Total 16–24 years	16–17 years	18–19 years	20–24 years	25–34 years	35–44 years	45–54 years	55–64 years	65+ years
All nonfarm industries	1.0	1.25	.59	1.28	1.38	1.15	.89	.77	.77	.41
Mining	1.0	1.53	.50	1.65	1.53	1.14	.94	.57	.56	.45
Construction	1.0	1.14	.39	1.03	1.27	1.24	.88	.77	.73	.40
Manufacturing	1.0	1.61	.50	1.79	1.66	1.15	.81	.68	.63	.42
Transportation	1.0	1.15	.38	1.13	1.21	1.20	.99	.84	.67	.40
Wholesale trade	1.0	1.58	.93	1.79	1.59	1.14	.82	.67	.65	.33
Retail trade	1.0	1.03	.67	1.03	1.23	1.26	.96	.81	.83	.37
Finance, et al	1.0	1.18	1.33	1.20	1.14	.93	.85	.99	1.14	.86
Services	1.0	1.17	.88	1.27	1.19	.97	.89	.96	1.13	.52
Public administration	1.0	1.38	1.25	1.39	1.39	1.32	.97	.67	.67	.43

Source of employment data—BLS, CPS Base table 29B, December 1977.

group would not be unexpected. However, despite the smaller likelihood of an older worker being a new employee and smaller percentages of first year injuries for such workers, the proportion of first year injuries is higher than for any other year of service even for the older workers; each succeeding year of service accounts for a lower percentage of injuries.

Severity and costs

The distribution of closed cases across age groups was similar to that for all cases submitted to the workers' compensation agencies.[8] Work injury to employment ratios were greater than 1.0 for workers age 18 to 34, and below 1.0 for all other ages as seen in the following tabulation:

	Age group					
	16–24	*25–34*	*35–44*	*45–54*	*55–64*	*65+*
All closed cases	1.19	1.05	.94	.90	.88	.50
Fatalities	.77	.90	1.06	.86	1.45	2.95
Permanent disabilities	.81	.90	1.09	1.15	1.24	.81
Temporary disabilities	1.27	1.03	.89	.86	.85	.45
Other	1.17	1.14	.96	.85	.75	.36

The distribution of cases, however, varied by severity. The more severe cases, fatalities and permanent disabilities, accounted for larger proportions of the cases among older workers than among younger ones. Conversely, temporary disabilities were more prevalent among younger workers. Fatality ratios were higher than 1.0 for the 35–44, 55–64, and 65 and over age groups, and below 1.0 for the others. Permanent disability ratios were highest for workers age 35–64. However, temporary disability and other ratios were higher among younger workers.

Average indemnity compensation and medical payment costs associated with occupational injuries increased with age. Indemnity compensation for workers age 16–17 averaged $593 compared with $1,637 for workers age 65 and over. Average medical payments ranged from $318 to $609 for these respective age groups. The increase in average costs according to age explains why the total costs are greater for each age group in the 25–54 range than for age 16–24, even though the latter group accounts for a larger number of cases than any of the next three age groups. Total costs for injured workers age 55 and over are lower because of the significantly fewer cases among these age groups.

The average cost patterns by extent of disability differ from the total cost patterns. Costs by severity generally peak in age group 45–54, and then decline somewhat in the next two age groups. Generally, indemnity compensation is awarded on the basis of the number and age of dependents, wage level of the injured worker, and extent of disability. Teenagers and older workers are less likely to have minor dependents, and so average

Table 3. Natures of injuries to workers, by age, in percent, 26 States, 1977

Age group	Total	Amputation, enuceation	Burn, (heat, chemical)	Contusion, crushing, bruise	Cut, laceration, puncture	Fracture	Hernia, rupture	Inflammation	Sprains, strains	Multiple injuries	Heart attack	All other
Total	100.0	0.8	3.6	14.3	17.3	7.8	1.3	1.1	34.4	1.4	0.3	17.8
16–17	100.0	1.0	11.0	13.1	37.9	6.0	.4	.3	15.7	.9	. . .	13.7
18–19	100.0	1.2	6.0	15.0	27.7	6.6	.8	.7	24.3	1.1	.0	16.6
20–24	100.0	.8	4.1	14.7	21.0	6.6	1.1	.9	31.7	1.1	.0	18.0
25–34	100.0	.6	3.2	13.8	15.9	7.0	1.0	1.1	37.4	1.4	.1	18.6
35–44	100.0	.7	2.9	13.6	13.4	7.8	1.3	1.3	38.9	1.5	.3	18.4
45–54	100.0	.8	2.9	14.7	13.4	9.4	1.8	1.4	36.1	1.7	.8	17.0
55–64	100.0	.8	2.6	15.3	14.1	11.3	2.9	1.1	32.2	1.8	1.3	16.6
65+	100.0	1.4	2.8	14.5	15.7	15.6	2.6	.5	23.8	2.9	1.9	18.4

Table 4. Source of injury to workers, by age, in percent, 26 States, 1977

Age group	Total	Bodily motion	Boxes, barrells, containers	Furniture, fixtures	Hand tools, not powered	Hand tools, powered	Machines	Metal items	Vehicles	Wood items	Working surfaces	Other person	All other
Total	100.0	6.8	10.5	3.0	5.6	1.7	6.6	13.1	7.3	4.1	13.6	3.1	24.6
16–17	100.0	2.6	10.4	3.4	12.8	1.2	9.4	8.5	5.3	2.6	10.0	1.8	32.0
18–19	100.0	3.6	10.2	2.6	8.0	2.3	10.3	14.1	6.2	4.8	9.5	2.0	26.4
20–24	100.0	5.3	10.8	2.7	6.9	2.0	7.4	14.7	6.6	5.0	10.5	2.5	25.4
25–34	100.0	7.3	10.6	2.7	5.4	1.7	6.0	13.8	7.8	4.2	12.6	3.3	24.8
35–44	100.0	8.3	10.6	3.0	4.6	1.4	5.8	12.7	7.9	3.7	14.3	3.5	24.2
45–54	100.0	8.3	10.4	3.4	4.2	1.3	5.8	11.5	7.7	3.5	17.2	3.5	23.2
55–64	100.0	7.4	9.9	4.0	4.0	1.3	6.1	10.9	6.8	3.5	20.2	3.2	22.5
65+	100.0	5.0	7.3	3.7	3.3	1.6	6.4	7.9	7.5	3.1	27.8	3.7	22.6

awards, particularly for fatalities and permanent disabilities, are lower for them than for age groups in the 20–54 year range.

Work-injury characteristics

Although the kinds of injuries generally occur in similar proportions to workers in all age groups, there are some notable differences that apparently reflect: inexperience, such as unfamiliarity with tools and equipment; advancing years, such as decreasing coordination and resiliency to trauma; or occupational restraints, such as being too "green" for the highly technical jobs, or being too old for the "heavy" ones.

Nature of injury. The most frequently occurring injuries to all workers were: sprains and strains, cuts and lacerations, contusions and bruises, fractures, and burns.[9] (See table 3.) These five categories accounted for more than 75 percent of all injuries. The major difference among age groups was that fractures, hernias, and heart attacks were markedly more frequent for older workers than for workers as a whole. For example, fractures among workers age 55 and over accounted for 11 to 16 percent of all their injuries, but fractures to all workers accounted for 8 percent of all injuries; The proportions of hernias for workers age 45 and over ranged from 2 to 3 percent, but for all workers they represented only 1 percent. Conversely, cuts and laceration, and burns occurred consistently less frequently with increasing age, perhaps reflecting experience as a factor in avoiding them.

Part of body affected. Back injuries accounted for 1 of 5 injuries to all workers. Workers age 65 and over and teenagers suffered back problems less frequently than all other workers. The respective percentages of backs as a proportion of all body parts injured were about 12 for both teenagers and workers age 65 and over, and 24 for workers age 35–44. These data probably primarily reflect the previously mentioned restraint that teenagers and older workers are less likely to have jobs requiring heavy lifting. However, injuries to eyes and fingers were more prevalent among younger workers than older ones.

There appeared to be a consistent trend that with increasing age, injuries to legs and body systems became more frequent. Legs as proportions of body parts involved in work injuries ranged from 8 percent among teenage workers to 11 percent for workers age 65 and over. For body systems, the proportions of injuries ranged from 1 percent for teenage workers to 4 percent for those age 65 and over.

Source of injury. As a proportion of all sources of injury, working surfaces accounted for the largest percentage among workers age 35 and over, and steadily increased in frequency, from the 10 percent levels experienced by teenage workers to 28 percent for older workers. (See table 4.) Conversely, injuries associated with nonpower hand tools were significantly higher for younger workers. The frequency declined from 13 percent among 16–17 year-olds to 3 percent for workers age 65 and older.

Table 5. Types of injuries to workers, by age, in percent, 26 States, 1977

Age group	Total	Struck against	Struck by	Fall from elevation	Fall on same level	Caught in, under, between	Bodily reaction	Over exertion	Contact with temperature extremes	Motor vehicle accidents	All other
Total	100.0	10.9	20.6	6.2	9.8	7.5	6.9	21.8	2.8	2.1	11.4
16–17	100.0	20.2	25.1	4.0	8.6	9.3	2.6	8.8	9.7	1.1	10.6
18–19	100.0	14.3	25.8	4.6	7.2	11.2	3.7	15.6	4.8	1.3	11.4
20–24	100.0	11.8	23.9	5.5	7.1	9.0	5.4	20.9	3.0	1.6	11.8
25–34	100.0	10.3	20.6	6.2	8.6	6.8	7.4	23.5	2.4	2.4	11.8
35–44	100.0	9.5	18.3	6.5	10.2	6.4	8.4	24.6	2.3	2.4	11.4
45–54	100.0	9.8	17.4	7.1	13.0	6.4	8.4	22.5	2.3	2.3	10.7
55–64	100.0	9.9	17.2	7.4	16.2	6.3	7.7	20.7	2.1	1.9	10.5
65+	100.0	9.4	17.4	9.1	22.8	6.3	5.1	13.9	2.6	2.6	10.9

Type of accident. Being struck by and against, and caught in, under, or between things accounted for more than 50 percent of injuries to teenage workers, but the percentage steadily declined for older workers. (See table 5.) Conversely, falls, particularly falls on the same level, became an increasingly serious problem with advancing age. For workers age 65 and over, falls produced nearly one-third of injuries compared with about 13 percent for teenagers.

These age-specific patterns of injury characteristics were similar across industry and occupational groups.

More data available

Additional data on extent of disability by indemnity compensation and medical costs, part of body affected by injury, distribution of employment and nature of injury by both age and industry, and ratios of work injury to employment percentages by occupation and age are available from the Bureau upon request. These data will be presented in future reprints of this article. □

FOOTNOTES

[1] The terms "injury" and "accident" also refer to illness and exposure. The single terms are used for brevity.

[2] These interpretations are taken from the summary of safety studies in Human Factors and Safety, Information Sheet 15, International Occupational Safety and Health Information Center (CIS), International Labour Office, Geneva, Switzerland, May 1967.

[3] See also the following studies: Remarques Sur Les Statistiques Technologiques D'Accidents De Travalleurs Salaries, Paris, France, Annee 1966, and Max D. Kossoris, "Relation of Age to Industrial Injuries," *Monthly Labor Review,* October 1940.

[4] Employment data for industry and occupation are taken from the Bureau's Employment and Earnings reports. The industry and occupational employment series are not comparable, but are the most reliable data available by age, on national employment. The occupational employment series also contains significant numbers of workers not covered by State workers' compensation, such as self-employed workers and unpaid family workers. To this extent, relative occupational employment ratios are overstated. The major factors that have a differential effect on the two series are detailed in *Employment and Earnings,* Vol. 25, No. 3 (Bureau of Labor Statistics, March 1978), pp. 139–59.

[5] For a discussion of differences in State coverage and reporting requirements see Norman Root and David McCaffrey, "Providing more information on work injuries and illnesses," *Monthly Labor Review,* April 1978, pp. 16–21. Data from these 26 jurisdictions were used for the development of ratios and comparisons of injury characteristics: Alaska, California, Colorado, Connecticut, Hawaii, Idaho, Indiana, Iowa, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, New Jersey, New Mexico, Oregon, South Dakota, Tennessee, Utah, Vermont, Virgin Islands, Wisconsin, and Wyoming.

[6] This can be length of time with the employer, the occupation, or the job. More often this relates to time with the employer. See Norman Root and Michael Hoefer, "The first work injury data available from new BLS study," *Monthly Labor Review,* January 1979 pp. 76–80.

[7] P. M. Shepard, 1970, quoted by D. A. Stubbs and A. S. Nicholson in "Manual Handling and Back Injuries in the Construction Industry: An Investigation," *Journal of Occupational Accidents,* Vol. 2, No. 3, August 1979, pp. 179–90.

[8] The 1977 cost and extent of disability data used in this analysis are from 5 States providing closed case data in the SDS program: Arkansas, Delaware, Montana, North Carolina, and Wisconsin.

[9] Classification of the factors associated with work injuries is based on the American National Standards Institute (ANSI) Z16.2, 1962 Standard Method of Recording Basic Facts Relating to the Nature and Occurrence of Work Injuries.

Work-related amputations by type and prevalence

Based on workers' compensation cases, new supplement to annual BLS survey of occupational injuries yields a 1977 estimate of 21,000 cases, most involving the loss of a finger

DAVID P. MCCAFFREY

Each year, American workers suffer disfiguring and often seriously disabling amputations as a result of their jobs. This study estimates that 21,000 such accidents took place in 1977, and attempts to isolate the industries, occupations, and situations in which they were most likely to occur. Also included is a brief discussion of the medical and income maintenance costs incurred by State workers' compensation systems in settling claims of injured workers.

The data. This analysis is based on 1977 data from the Supplementary Data System (SDS), which augments the Bureau of Labor Statistics' annual survey of occupational injuries and illnesses.[1] Each of the cases selected for study represents an individual who suffered a work-related "amputation" or "enucleation" (such as loss of an eye); both of these types of injuries will be referred to as "amputations" in subsequent discussion.

Two categories of cases are reported by participating State workers' compensation agencies in the SDS: "closed" and "current." A "closed" case is one for which a worker had received all compensation and medical payments due for the injury by the end of the reference year, regardless of the year in which the case occurred or was reported.[2] A "current" case, on the other hand, either occurred or was reported during the reference year, depending upon the State. For 1977, most States submitted current case data, a few only closed cases, and three States submitted both.

The minimum number of lost workdays required before a case is reported varies by State. Some include all reported cases, and other States include cases with 1 or more lost workdays, 4 or more lost workdays, and so forth. Consequently, interstate comparisons of SDS data must be made very cautiously, and combinations of State data used in this article should not be taken as a census or reliable sample of a universe of similar cases. Data are combined here, however, because the distributions of cases among States do not vary greatly.

Number of amputations. There is no national survey of the specific nature of occupational injuries (that is, the number or frequency of amputations, sprains, fractures, and so forth.[3] However, by making certain assumptions, we can make a reasonable estimate of a national total of about 21,000 amputations in 1977. This procedure combines the "current case" SDS information and non-injury-specific data from the Bureau's annual survey of occupational injuries and illnesses.[4]

The estimate of the national total of amputations in 1977 (A_t) is obtained by summing the number of "current case" amputations reported by 22 States for 1977 (A_n),[5] dividing by the sum of lost workday cases reported for these States in the 1977 annual survey of occupa-

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tional injuries and illnesses (LWC_n), and multiplying by the total number of lost workday cases for the country that year (LWC_t):

$$\left(\frac{(A_1 + A_2 \ldots\ldots A_{22})}{(LWC_1 + LWC_2 \ldots\ldots LWC_{22})}\right) (LWC_t) = A_t$$

Thus,

$$\left(\frac{8{,}381}{866{,}623}\right) 2{,}203{,}600 = 21{,}311$$

for an estimate of about 21,000 amputations nationally.

The assumptions required to justify this computation are that (1) all amputations entered in the SDS are reported as lost workday cases in the annual survey; (2) the total industrial and labor force compositions of the participating SDS States are representative of those of nonparticipating States; and (3) the long minimum lost workday periods before a case is submitted to the SDS by some States will not screen out a significant number of amputations. The last of the foregoing assumptions is the weakest. Some amputations, particularly those affecting the first (distal) joint of a finger, may not result in more than 2 or 3 lost workdays. These would not be reported by a State submitting only cases involving 4 or more lost workdays. For 1977, Colorado, Maryland, and Wisconsin submitted cases involving 4 or more lost workdays, Michigan reported cases involving 7 days or more, and New Mexico and Tennessee submitted those resulting in at least 8 lost workdays. Consequently, the national estimate probably understates the number of "minor" amputations. However, because so few States use the longer minimum periods, the understatement does not make the estimate implausible and, in the absence of comparable information, certainly does not make it valueless.

Amputations by industry. Table 1 presents the distribution of amputations by industry division, and for selected 3-digit SIC coded industries. Manufacturing accounted for about 30 percent of employment, but almost 60 percent of the amputations. The 3-digit manufacturing industries listed had 6.3 percent of the employment, but 18.6 percent of the amputations. These are the industries one associates with such injuries; they have many cutting, sawing, and stamping activities. Agriculture, forestry, and fisheries, mining, and construction also had relatively high proportions of amputations.

Method for examining cross-tabulations. Tables 2, 4, 5 and 6 show the number of cases and adjusted standardized residuals (ASR's) for the source of injury by industry, by part of body affected, by type of accident, and for occupation by part of body affected. The ASR's are indicators of the table cells which have greater than expected numbers of amputations. The method by which they are calculated is presented in the appendix to this article.

Table 1. Percent distribution of work-related amputations and employment by industry division and selected industries, private sector, 23 States, 1977

Industry divisions and selected industries	Employment [1]	Amputations [2]
Agriculture, forestry, and fisheries	.6	2.7
Mining	.9	2.9
Construction	5.3	9.0
Manufacturing	30.7	59.8
Meat products	.5	1.9
Sawmills and planing mills	.6	2.3
Millwork, plywood, and structural members	.8	2.2
Miscellaneous plastics products	.7	1.8
Fabricated structural metal products	.6	2.2
Metal forgings and stampings	.5	2.3
Miscellaneous fabricated metal products	.4	1.6
Motor vehicles and equipment	2.2	4.3
Transportation and public utilities	6.1	3.1
Trucking, local and long distance	1.7	1.9
Wholesale and retail trade	28.2	15.8
Grocery stores	2.5	2.9
Eating and drinking places	6.2	2.7
Finance, insurance, and real estate	6.8	.7
Services	21.5	5.8
Unidentified	—	.1

[1] Employment data were obtained from *County Business Patterns, 1977* (Bureau of the Census, 1979). Employment data for Maine were obtained from *County Business Patterns 1976* (Bureau of the Census, 1978).

[2] Injury data are from 1977 SDS records of 8,602 "current-case" amputations. States included are Alaska, California, Colorado, Connecticut, Hawaii, Idaho, Indiana, Iowa, Kentucky, Maine, Maryland, Michigan, Missouri, Montana, Nebraska, New Jersey, New Mexico, Oregon, South Dakota, Tennessee, Utah, Vermont, and Wisconsin.

NOTE: Due to rounding, sums of industry division percentages may not equal 100.

The advantage of the adjusted standardized residuals is that, when the variables in the table are independent, the ASR's are approximately normally distributed with mean equal to zero and standard deviation equal to 1.[6] Thus, there is only a 5-percent chance of an ASR value greater than 1.96 or less than −1.96 occurring if the observed frequency in a cell is only a random variation from the expected value. If the value is greater than 1.96 or less than −1.96, we can assume that the number of cases in the cell is significantly different from the expected value, and that there is an unusually strong relationship between the two cross-classified variables.

Source of injury by industry. Table 2 presents the cross-classification of industry by source of injury. "Machines" were the leading cause of injury in every division except mining and transportation and public utilities, and were nearly as important as "metal items" in mining. The adjusted standardized residuals indicate that the machines category was heavily overrepresented in manufacturing. Consequently, fewer such cases than expected appear in other industries, although the *absolute* numbers are still quite high. Table 3, which shows the source-of-injury distribution in more detail, indicates that a small group of machines accounted for 2,752 of the 4,645 machine accidents.

Other notable sources of injury in specific industries were "metal items" and "hoisting apparatus" in mining

Table 2. Source of injury by industry: numbers of cases and adjusted standardized residuals,[1] 1977

Industry	Boxes, containers	Buildings, structures	Conveyors	Electrical apparatus	Hand tools, nonpowered	Hand tools, powered	Hoisting apparatus	Machines	Mechanical power transmission apparatus	Metal items	Vehicles	Miscellaneous or unknown	Total cases
Total cases	198	119	199	63	314	446	174	4,645	359	996	509	580	8,602
Agriculture, forestry, and fisheries	2 (1.49)	5 (1.01)	10 (2.04)	4 (1.79)	13 (1.59)	16 (1.17)	5 (.14)	95 (−4.11)	23 (4.41)	18 (−1.86)	23 (2.59)	19 (.87)	233
Mining	2 (−1.61)	1 (−1.35)	13 (3.08)	4 (1.63)	18 (3.04)	7 (−1.73)	32 (12.28)	56 (−10.17)	19 (2.75)	57 (5.63)	11 (−1.03)	30 (3.36)	250
Construction	23 (1.32)	9 (−.54)	15 (−.71)	8 (1.04)	37 (1.78)	164 (21.11)	24 (2.25)	242 (−13.20)	19 (−2.49)	120 (3.62)	39 (−1.06)	71 (2.86)	771
Manufacturing	113 (−.81)	41 (−5.69)	134 (2.18)	29 (−2.25)	110 (−9.14)	164 (−10.21)	68 (−5.65)	3,269 (21.59)	207 (−.86)	572 (−1.65)	184 (−11.24)	257 (−7.90)	5,148
Transportation and public utilities	23 (6.97)	8 (2.28)	5 (−.50)	5 (2.21)	4 (−1.91)	4 (−2.77)	6 (.26)	35 (−13.66)	21 (3.05)	43 (2.32)	82 (17.40)	32 (3.45)	268
Wholesale and retail trade	26 (−1.06)	34 (3.83)	16 (−3.05)	12 (.70)	95 (7.12)	50 (−2.75)	26 (−.33)	697 (−2.31)	36 (−3.08)	142 (−1.46)	111 (3.80)	118 (3.07)	1,363
Finance, insurance, and real estate	1 (−.29)	4 (3.61)	0 (−1.18)	0 (−.66)	2 (−.08)	8 (2.97)	1 (−.16)	21 (−2.73)	5 (1.70)	7 (.12)	3 (−.24)	6 (1.10)	58
Service	7 (−1.40)	17 (3.95)	6 (−1.72)	1 (−1.45)	35 (4.08)	33 (1.43)	11 (.27)	227 (−4.11)	28 (1.61)	36 (−3.19)	55 (4.91)	47 (2.40)	503
Unidentified	1 (1.92)	0 (−.34)	0 (−.44)	0 (−.24)	0 (−.55)	0 (−.66)	1 (2.11)	3 (−.94)	1 (1.18)	1 (−.08)	1 (.79)	0 (−.76)	8

[1] Adjusted standardized residual explained in text. It is the second of the two figures shown for each combination of variables.

NOTE: Data are based on reports of current cases for 23 States.

and construction; "powered hand tools" in construction; and "vehicles" in transportation and public utilities, wholesale and retail trade, and services.

Source of injury by part of body affected. According to data presented in table 4, 91 percent of the amputations were of the finger(s), and 3 percent were of the toe(s). Most finger amputations (56 percent) involved machines. Toe amputations frequently involved metal items, vehicles, and—absolutely, if not according to the adjusted standardized residual—machines.

In addition to machines, conveyors and metal items were a substantial cause of arm amputations. Conveyors, vehicles, and boxes and containers were frequent sources of leg amputations. Vehicles, besides being the largest identified cause of leg amputations, produced many amputations at the ankle and toe(s).

Using 1977 data from three "closed-case" States (Arkansas, Idaho, and North Carolina), the following tabulation indicates the differences in compensation and medical costs for amputations of different parts of the body. Finger and toe amputations together accounted for 96.8 percent of the cases in these States, and 83.5 percent of the costs. Amputations and enucleations involving major extremities and the eyes were 2.7 percent of the cases but 14.8 percent of the costs. (The relative costs of amputations of different parts of the body are discussed in detail in a later section.)

Part of body	*Percent of—* *Cases*	*Cost*
Eye	.2	.7
Arm	.8	5.4
Hand, wrist	1.4	7.2
Finger(s)	94.6	81.0
Leg	.2	.9
Ankle	.1	.6
Toe	2.2	2.5
Other or unclassified	.5	1.6
Total	100.0	100.0

Source of injury by type of accident. Table 5 shows that the overwhelming majority of amputations involved workers being caught in, under, or between objects (65.9 percent), striking against objects (15.9 percent), and being struck by objects (15.0 percent). Workers being caught in, under, or between machines, or striking against parts of machines accounted for 4,358, or almost 51 percent, of the cases; the adjusted standardized residuals for the two cells (13.36 and 15.69, respectively) also indicate that machine cases were concentrated in these particular accident types. Other significant combinations were those involving workers being struck by metal items and being caught in mechanical power transmission apparatus and conveyors.

Occupation by part of body affected. Among the major occupational categories listed in table 6, "operatives, except transportation" incurred the largest number of amputations—2,918, or 34 percent of the cases. Certain specific occupations within this general category had particularly large numbers of such accidents. Assemblers (209 cases), meat cutters and butchers (128 cases), precision machine (such as drill press, grinder, lathe, or milling machine) operators (193 cases), punch and stamping press operatives (253 cases), and sawyers (171 cases) accounted for 954 of the category's 2,918 amputations. Not surprisingly, because they work closely with machines and tools, these operatives suffered both absolutely and relatively high numbers of finger amputations.

The second highest incidence of injury was among "craft and kindred workers;" 1,709 accidents—about 20 percent of the total—were reported for the category as a whole. Within this group, mechanics and repairers had 557 cases, with heavy equipment mechanics accounting for 195. Carpenters also had 262 cases. Although large, the number of finger amputations for craftworkers was proportionate to that for all workers.

"Laborers, except farm" were the third largest group (1,340 cases or about 15 percent) with especially numerous amputations of the toe and leg and at the ankle.

Table 3. Distribution of work-related amputations by selected sources of injury, private sector, 23 States, 1977

Source	Number of current cases	Percent of total
Total	8,602	100.0
Boxes, containers	198	2.3
Reels, roles	55	.6
Containers, n.e.c.	54	.6
Buildings, structures	119	1.4
Doors, gates	92	1.1
Conveyors	199	2.3
Powered conveyors	163	1.9
Electrical apparatus	63	.7
Motors	25	.3
Hand tools, nonpowered	314	3.7
Knives	120	1.4
Ropes, chains	38	.4
Hand tools, powered	446	5.2
Saws	290	3.4
Hand tools, powered, n.e.c.	64	.7
Hoisting apparatus	174	2.0
Cranes, derricks	55	.6
Jacks	27	.3
Machines	4,645	54.0
Buffers, grinders, and similar machines	191	2.2
Drilling, boring machines	196	2.3
Planers, shapers, molders	231	2.7
Presses (not printing)	796	9.3
Saws	711	8.3
Shears, slitters, slicers	627	7.3
Machines, n.e.c.	1,073	12.5
Mechanical transmission apparatus	359	4.2
Chains, ropes, cables	114	1.3
Metal items	996	11.6
Auto parts	74	.9
Metal items, n.e.c.	700	8.1
Vehicles	509	5.9
Highway vehicles, powered	204	2.4
Forklifts, and similar vehicles	151	1.8
Miscellaneous or unknown	580	6.7

n.e.c. = not elsewhere classified.

Farm laborers showed the same pattern, although for a much smaller number of cases. Transportation equipment operatives accounted for 282 cases (199 involving truck drivers), with relatively large numbers of amputations of the hand or wrist, toe, and leg.

The following tabulation shows that, in 1977, costs for three "closed-case" States (Arkansas, Idaho, and North Carolina) were distributed across these occupational categories in about the same way as the percentage of cases.

Occupational category	Percent of— Cases	Cost
Total	100.0	100.0
Professional and technical personnel	.6	.4
Managers	1.7	1.9
Salesworkers	.3	.1
Clerical personnel	1.0	.6
Craft and kindred workers	26.1	28.1
Operatives, except transportation	45.8	45.8
Transportation equipment operatives	2.8	2.7
Laborers, except farm	17.9	17.8
Farm laborers	1.1	.8
Service workers	1.8	1.1
Unidentified	1.0	.6

More about costs. Data on work-loss compensation and medical costs are available for some States which provide "closed-case" information. Such costs are, of course, only a part of the total economic and social price of work-related amputations. However, they are the most easily measured component of that price, and may give an indication of the overall relative severity of different types of injuries.

The final compensable cost of an amputation to the State is influenced by a variety of factors; the part of the body involved, the time lost from work, the duration of payments, the level of benefits provided by the State, and occupational and personal characteristics of the worker all enter into the eventual amount paid. This means that single or bivariate (cell-type) tabulations of cost data have certain limitations. While we can assess the average costs of particular types of amputations without knowing the years in which the cases occurred, or the wages and ages of the injured workers, it would be useful to estimate the cost of particular types of amputations if all other factors were constant.

The SDS obtains only some of the relevant information. However, for three "closed-case" States (Arkansas, Idaho, and North Carolina) in 1977 there were, among other items, data on total compensation and medical costs, the year in which the amputation occurred, the part of the body affected, the extent of disability, and the wages and age of the injured worker.

Accordingly, these data were subjected to an analysis of variance in total cost due to year of occurrence, part of body affected, extent of disability, and the weekly wage and age of the worker. The part of body affected

Table 4. Source of injury by part of body affected: numbers of cases and adjusted standardized residuals,[1] 1977

Part of body	Boxes, containers	Buildings, structures	Conveyors	Electrical apparatus	Hand tools, nonpowered	Hand tools, powered	Hoisting apparatus	Machines	Mechanical power transmission apparatus	Metal items	Vehicles	Miscellaneous or unknown	Total cases
Total cases	198	119	199	63	314	446	174	4,645	359	996	509	580	8,602
Eye	0 (−.59)	0 (−.46)	0 (−.60)	0 (−.33)	1 (.62)	0 (−.91)	1 (1.28)	1 (−3.68)	0 (−.81)	5 (2.64)	0 (−.97)	7 (6.17)	15
Arm	2 (−.10)	1 (−.26)	10 (5.44)	2 (1.61)	0 (−1.89)	1 (−1.80)	2 (.09)	41 (−1.93)	5 (.58)	11 (.08)	3 (−1.11)	15 (3.63)	93
Hand, wrist	4 (.41)	1 (−.70)	3 (−.16)	0 (−1.03)	5 (−.08)	6 (−.52)	1 (−1.13)	88 (1.92)	7 (.45)	9 (−1.97)	10 (.57)	8 (−.53)	142
Finger	171 (−2.32)	110 (.54)	160 (−5.30)	58 (.29)	300 (2.85)	416 (1.71)	154 (−1.17)	4,411 (13.84)	340 (2.49)	866 (−4.79)	406 (−9.16)	438 (−13.53)	7,830
Leg	6 (2.17)	4 (2.00)	9 (4.05)	0 (−.92)	0 (−2.07)	1 (−2.06)	2 (−.18)	20 (−7.72)	3 (−.80)	10 (−.88)	23 (6.60)	34 (10.03)	112
Ankle	3 (1.91)	0 (−.81)	3 (1.90)	0 (−.58)	0 (−1.32)	0 (−1.59)	3 (2.17)	5 (−5.88)	0 (−1.42)	13 (3.55)	11 (5.19)	8 (2.89)	46
Toe	10 (1.79)	3 (.27)	11 (2.20)	1 (−.63)	4 (−1.77)	21 (2.29)	10 (2.23)	51 (−10.91)	3 (−2.40)	74 (8.96)	34 (5.17)	30 (3.32)	252
Other[2] or unknown	2 (−.37)	0 (−1.26)	3 (.26)	2 (1.32)	4 (−.04)	1 (−2.06)	1 (−.86)	28 (−6.20)	1 (−1.75)	8 (−1.48)	22 (6.20)	40 (12.31)	112

[1] Adjusted standardized residual explained in text. It is the second of the two figures shown for each combination of variables.

[2] May include some cases involving previous categories which were not coded at sufficient detail to be specifically identified.

NOTE: Data are based on reports of current cases for 23 States.

was clearly the largest determinant of case cost; that factor had the highest F-value in each of the States. The eventual cost of an amputation was also substantially determined by its year of occurrence.

Virtually all of the amputations were classified into two extent-of-disability codes—temporary disability and permanent partial disability. Except in Idaho, the extent of disability variable was not a strong explanatory factor for the variance in cost. Similarly, neither the workers' wages nor ages affected differences in case costs once one controlled for the preceding factors, except for the effect of wages in North Carolina which,

Table 5. Source of injury by type of accident: numbers of cases and adjusted standardized residuals,[1] 1977

Type of accident	Boxes, containers	Buildings, structures	Conveyors	Electrical apparatus	Hand tools, nonpowered	Hand tools, powered	Hoisting apparatus	Machines	Mechanical power transmission apparatus	Metal items	Vehicles	Miscellaneous or unknown	Total cases
Total cases	198	119	199	63	314	446	174	4,645	359	996	509	580	8,602
Struck against	21 (−2.06)	5 (−3.51)	3 (−5.62)	9 (−.35)	36 (−2.19)	141 (9.32)	3 (−5.17)	1,004 (15.69)	5 (−7.68)	68 (−8.33)	24 (−7.12)	49 (−5.08)	1,368
Struck by	47 (3.48)	8 (−2.55)	6 (−4.79)	6 (−1.22)	173 (20.26)	164 (13.22)	36 (2.12)	250 (−27.08)	9 (−6.77)	350 (18.92)	87 (1.36)	155 (8.18)	1,291
Fall from elevation	0 (−.91)	1 (.75)	0 (−.91)	0 (−.51)	0 (−1.15)	0 (−1.39)	1 (.35)	2 (−5.74)	0 (−1.24)	1 (−1.62)	4 (1.38)	26 (15.97)	35
Fall same level	1 (−.10)	1 (.42)	0 (−1.07)	0 (−.60)	0 (−1.35)	0 (−1.62)	0 (−1.00)	8 (−5.20)	0 (−1.45)	2 (−1.61)	2 (−.52)	34 (17.76)	48
Caught in, under, or between	126 (−.68)	104 (4.98)	190 (8.90)	43 (.40)	86 (−14.67)	126 (−17.23)	134 (3.12)	3,354 (13.36)	344 (12.22)	558 (−6.99)	357 (2.08)	247 (−12.27)	5,669
Rubbed, abraded	1 (.01)	0 (−.78)	0 (−1.01)	0 (−.56)	15 (10.95)	11 (6.05)	0 (−.94)	6 (−5.28)	0 (−1.37)	6 (.49)	0 (−1.65)	4 (.67)	43
Motor vehicle accident	0 (−.86)	0 (−.66)	0 (−.86)	0 (−.48)	0 (−1.09)	0 (−1.30)	0 (−.80)	(−5.68)	0 (−1.16)	0 (−2.02)	30 (21.48)	0 (−1.50)	31
Miscellaneous	2 (−.43)	0 (−1.29)	0 (−1.68)	5 (4.52)	4 (−.13)	4 (−.87)	0 (−1.56)	20 (−8.06)	1 (−1.81)	11 (−.74)	5 (−.76)	65 (21.20)	117

[1] Adjusted standardized residual explained in text. It is the second of the two figures shown for each combination of variables.

NOTE: Data are based on reports of current cases for 23 States.

according to the zero-order correlation coefficient, was small but significant.

A "multiple classification analysis" of the effects of selected categorical factors (year of occurrence, part of body affected, and extent of disability) on final cost was also conducted. This procedure involves adjusting the average cost for a given category as it originally appears in the data by controlling for the effects of all other variables. For example, the average unadjusted cost for a case occurring in Arkansas in 1976 was $3,480. Some of the dollar difference between this and the averages for other years is due to the fact that cases in 1976 involved a unique distribution of parts of body affected, types of disabilities, and workers with different wages and of different ages. By controlling for the effects of these other factors, we can obtain an estimate of the average *adjusted* cost of a case which occurred in 1976 which is not affected by such inter-year variations. If we eliminate the influences of the unique combination of factors in 1976, the average adjusted cost of an Arkansas case which occurred that year and was closed in 1977 becomes $3,535.

Results of the multiple classification analysis show that, generally, the earlier a case occurred, the higher the total cost by 1977. (The 1977 cases in Idaho and 1973 cases in North Carolina are exceptions.) While the older cases could have been more serious, resulting in longer payment periods and larger totals, the more severe recent cases may not have been closed by 1977. When other factors were controlled, amputations of the arm and wrist were generally found to be the most costly. Toe and finger amputations, while numerous, were the least expensive. And, temporary disabilities, which presumably involve amputations with no lasting loss of working effectiveness, were relatively infrequent and much less expensive than permanent partial disabilities.

Generally, then, the part of body affected is the most significant influence on cost in each State. However, even for amputations involving the same parts of body, the years in which the cases occurred and the extents of disability also strongly affect how much cases eventually cost by 1977. These several factors should be considered when interpreting the relative costs of amputations based on "closed-case" workers' compensation data, and indicate that single or bivariate tabulations of such data should be used cautiously.

Detailed results of the analysis of variance and the multiple classification analysis, upon which the preceding general observations are based, are available from the author upon request.

THE NEW Supplementary Data System can suggest investigation of injury causation in unprecedented detail. But the system itself is still in the developmental stages, and many gaps and inconsistencies in reporting procedures among the participant States remain. As the system is expanded and refined, further analyses such as the one presented in this article may help policymakers, employers, and workers to determine and minimize those specific combinations of circumstances most likely to result in amputations and other job-related injuries.

Table 6. Part of body affected by occupation: numbers of cases and adjusted standardized residuals,[1] 1977

Part of body	Professional and technical	Managerial, except farm	Sales	Clerical	Craft and kindred workers	Operatives, except transportation	Transportation equipment operators	Laborers, except farm	Farmers	Farm laborers	Service	Miscellaneous or unknown	Total cases
Total cases	67	200	35	89	1,709	2,918	282	1,340	3	138	391	1,430	8,602
Eye	0 (−.34)	1 (1.12)	0 (−.25)	0 (−.40)	5 (1.31)	2 (−1.69)	0 (−.71)	5 (1.90)	0 (−.07)	0 (−.49)	2 (1.64)	0 (−1.73)	15
Arm	1 (.33)	3 (.58)	1 (1.02)	0 (−.99)	12 (−1.69)	30 (−.34)	3 (−.03)	14 (−.14)	0 (−.18)	1 (−.41)	7 (1.39)	21 (1.55)	93
Hand, wrist	1 (−.10)	1 (−1.29)	0 (−.77)	2 (.44)	16 (−2.59)	53 (.86)	10 (2.54)	14 (−1.89)	0 (−.22)	2 (−.19)	13 (2.66)	30 (1.45)	142
Fingers	61 (.01)	176 (−1.51)	29 (−1.69)	73 (−2.99)	1,573 (1.64)	2,733 (6.13)	225 (−6.71)	1,186 (−3.51)	1 (−3.50)	112 (−4.09)	333 (−4.15)	1,328 (2.67)	7,830
Leg	1 (.14)	2 (−.38)	1 (.81)	2 (.79)	20 (−.54)	20 (−3.61)	17 (7.12)	27 (2.51)	0 (−.20)	7 (3.94)	8 (1.33)	7 (−2.97)	112
Ankle	0 (−.60)	4 (2.87)	1 (1.89)	2 (2.23)	1 (−3.02)	10 (−1.75)	1 (−.42)	12 (1.97)	0 (−.13)	3 (2.66)	2 (−.06)	10 (.93)	46
Toe	1 (−.70)	8 (.91)	1 (−.03)	6 (2.14)	44 (−.97)	47 (−5.20)	15 (2.42)	71 (5.60)	2 (6.55)	9 (2.52)	16 (1.40)	32 (−1.70)	252
Other[2] or unknown	2 (1.22)	5 (1.51)	2 (2.31)	4 (2.67)	38 (3.75)	23 (−3.01)	11 (3.91)	11 (−1.69)	0 (−.20)	4 (1.67)	10 (2.24)	2 (−4.25)	112

[1] Adjusted standardized residual explained in text. It is the second of the two figures shown for each combination of variables.

[2] May include some cases involving previous categories which were not coded at sufficient detail to be specifically identified.

NOTE: Data are based on reports of current cases by 23 States.

In some cases, SDS data also permit evaluation of the medical and other compensable costs incurred by a State in settling the claims of injured workers. However, we can never measure the more important social costs and individual losses resulting from accidents which are too often preventable. □

FOOTNOTES

[1] See Norman Root and David McCaffrey, "Providing more information on work injury and illness," *Monthly Labor Review,* April 1978, pp. 16–21, for a complete discussion of the Supplementary Data System.

[2] In some States, a "closed" case means a case for which, in the reference year, the State decided the total benefits to be paid. States reporting in this manner were excluded from the analysis.

[3] Because of the reporting burden that would be involved, the BLS annual Survey of Occupational Injuries and Illnesses does not ask firms to describe the specific physical characteristics of their employees' injuries or illnesses.

[4] For a report on the survey, see *Occupational Injuries and Illnesses in the United States by Industry, 1977,* Bulletin 2047 (Bureau of Labor Statistics, 1980).

[5] One State (New Jersey) did not provide a 1977 estimate of lost workday cases for the annual survey. Consequently, New Jersey data are not used in obtaining the ratio of amputations to lost workday cases, although they are included in the other "current" case tables.

[6] Brian S. Everitt, *The Analysis of Contingency Tables* (New York, John Wiley and Sons, Inc., 1977), pp. 46–48; Shelby J. Haberman, "The Analysis of Residuals in Cross-Classified Tables," *Biometrics,* March 1973, pp. 205–20.

APPENDIX: Construction of adjusted standardized residuals

As previously indicated, adjusted standardized residuals (ASR's) are indicators of the cells in a cross-tabulation which have greater than expected values—values which probably represent a strong correlation between the two crossed variables. ASR's are constructed as follows.

Chi-square (X^2) values, which test whether the variables in the table are independent, are obtained by the formula:

$$X^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{(n_{ij} - E_{ij})^2}{E_{ij}}$$

where n_{ij} refers to the observed values in the cell, and E_{ij} is the expected value in the cell. The expected value E_{ij} is the estimated value of the cell if the variables are independent. The larger the squared differences between the observed and expected values are, the larger the chi-square value becomes, and the more likely it is that the variables in the table are associated. E_{ij} is obtained by multiplying the cell's marginals (the total frequencies in the row (n_i) and column (n_j) in which the cell occurs) and dividing by the total number of cases in the table (N):

$$E_{ij} = \frac{n_i \, n_j}{N}$$

The adjusted standardized residuals indicate the most marked differences between the observed and expected values. *Residuals* refer to the differences between observed and expected values ($n_{ij} - E_{ij}$). These absolute differences, while useful, give an incomplete impression. For example, consider a cell where we expect 1,000 cases, but observe 1,200, and another cell where we expect 100 but observe 300. In both cases the absolute residual is 200, but in one cell the difference is 20 percent for 1,000 cases and in the other, 200 percent for 100 cases. Safety workers undoubtedly would be interested in the cell with 1,200 cases. But the cell with a 200-percent difference between the observed and expected values tends to show a stronger positive relationship between the cross-classified variables.

We can get a better perspective on the residuals by obtaining *standardized residuals* (e_{ij}), by dividing the residuals by the square root of the expected values:

$$e_{ij} = \frac{(n_{ij} - E_{ij})}{\sqrt{E_{ij}}}$$

In the case above, the standardized residual for the cell with 1,200 cases would be $(1{,}200-1{,}000)/\sqrt{1{,}000}$, or 6.32; and for the cell with 200 cases, $(300-100)/\sqrt{100}$, or 20.00. The standardized residual of 20.00 supports the reasonable conclusion that getting 300 cases where 100 are expected is more surprising than getting 1,200 where we expect 1,000.

The *adjusted* standardized residuals (d_{ij}) are obtained by dividing the standardized residuals by an estimate of their standard deviation, or square root of the variance v_{ij}, where:

$$v_{ij} = \left(1 - \frac{n_i}{N}\right)\left(1 - \frac{n_j}{N}\right)$$

Therefore,

$$d_{ij} = \frac{e_{ij}}{\sqrt{v_{ij}}}$$

Using statistics to manage a State safety and health program

Occupational injuries and illnesses statistics are important to Ohio's accident prevention program; the data identify companies most in need of services and are the basis of safety seminars and training sessions, which can lead to significant savings in insurance costs

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In 1977, the Ohio Industrial Commission's Division of Safety and Hygiene began a program to improve and upgrade the delivery of industrial accident prevention services to the employers and employees in the State. The use of statistics was of major importance in the 4-year program. The division sought to improve accident prevention services through more cost-effective management, through the development of new programs, and through the use of statistics to identify those companies most in need of assistance.

First, the division modernized its data processing equipment. Then it developed a systematic approach to allocate its resources in a more effective manner. The specific challenge was to determine a method that would provide direction to its safety consultants.

Identifying 'needy' companies

In the past, most of the effort to allocate resources occurred on a random basis. This method was ineffective, as companies which did not need services were contacted while those that did were overlooked. The solution, then, would be to identify those companies most in need of services and to provide the consultant with some background information about that company. The consultant would then have a reason for calling on a specific company and would be better informed about the type of accidents that had occurred at that job site.

Traditionally, employers needing assistance were identified through the use of "penalty-rating" criteria. Employers were grouped, according to their industrial operation, into 233 manual classifications. The expected losses resulting from occupational illnesses or injuries were determined for all employers in a particular grouping. The loss expectancies established base rates for each classification. A merit-rating provision allowed employers premiums to be adjusted according to their loss experience. If a company's loss experience was greater than average, the company could be assessed additional premiums of up to 95 percent of the base rate established for that classification. The firm then became "penalty-rated." Companies with good safety records were allowed to reduce the premiums they pay.

There were several shortcomings with the use of the penalty-rating criteria to identify employers. The first was that penalty-rating was based on outdated accident information. For example, the rating period for current rates (established July 1, 1980) is based on the accident experience of employers from 1975 through 1978.

Another shortcoming was that penalty-rating criteria were oversensitive to small employers who had experienced a single severe and costly accident.

Perhaps the most significant shortcoming was that merit-rated employers represented only 20 percent of

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the total number of employers who pay into the State insurance fund. Merit-rated employers, on the whole, represent larger companies; we needed to identify companies not in the merit-rating system which needed our assistance.

The formula adopted used information derived from lost-work time claims and from payroll data that were available from the employers. (Because of confidentiality restrictions, Ohio's employment security agency cannot share employment figures for individual employers with other State agencies.) The occupational injuries and illnesses were coded according to specifications of the Bureau of Labor Statistics' Supplementary Data System. From this information the Service Direction System was formed. This computerized system produces a list of companies most likely to benefit from the services of the division. The heart of the Service Direction System is the Service Direction Indicator, which consists of a level indicator and a trend indicator.

The level indicator attempts to identify companies with an accident rate higher than the rate for the entire industry. It is developed by dividing the number of accidents for a company by its payroll. This ratio gives an approximation of the company's accident rate. The level indicator, then, is the percentage deviation from the industry standard which shows whether a company has a better or worse than average accident rate.

The trend indicator is a year-to-year safety comparison for an individual company. It has a frequency and a severity component which shows whether a company's accident frequency or accident severity is getting better or worse. The frequency component is the difference of the ratio of injuries to payroll between two successive years. The severity component is the year-to-year difference of the ratio of workdays lost to payroll.

The Service Direction System is developed by combining the level and trend factors with different weights. This is done for every company in Ohio, and the priority list of companies in need of services is based on this indicator.

Profiling accidents

When safety consultants receive the names of companies to be visited, they also get a computer report profiling the accidents of those companies, with special emphasis on problem areas. The consultant reviews the accident profile with company officials and recommends possible solutions.

One of the recommendations may be the presentation of a "cost and statistical report", a computer-produced report showing how accidents have affected a company. These reports, available to merit-rated employers only, are confidential and are prepared only at the request of a company's management. They show how the company's premiums are affected by its industrial accidents. There are three parts to the report. The first part summarizes the types of accidents charged against that company, along with the causes. The second part summarizes the current accidents filed against that company that have not yet been adjudicated through the workers' compensation system. And the third part is an analysis of how those accidents have affected that company's premium.

The way in which one company's premium was affected by its accident experience demonstrates the usefulness of the "cost and statistical" report. The company had a fiscal year payroll of slightly more than $4 million. At the base rate, it would have paid $62,700 in premiums in the most recent year and approximately $185,600 over the entire rating period, 1972–77. However, the company had a worse than average loss experience in FY 1977, and paid $80,800 in premiums. Because of a long history of accidents, it paid more than $288,000 in premiums during the rating period. This represents penalties of $102,671. In contrast, if this company had maintained an excellent safety record, it could have paid as little as $71,000 in total premiums for the entire 5-year period.

As illustrated, the cost and statistical report summarizes the cost information for the top management of a company. Additional data in the report allow companies to compare themselves to a range of possible premiums. The report has proven to be an extremely effective tool.

Other uses

The accident statistics are used in a number of other areas.

- Once a year, an article summarizing the lost worktime resulting from injuries is published in the *Monitor,* a division-produced safety magazine. The article highlights significant aspects of industrial accidents and diseases relating to the current year.
- Detailed statistical reports containing cross-tabulations of accidents and their causes are prepared for 41 industries, 233 manual classifications, and 88 counties. These reports are used to respond to requests for general statistical information.
- Statistics based on lost-time injuries and illnesses have been used for topics within other division programs. Quick reading pamphlets, based on these "lost work-time" statistics have been prepared for various trade meetings and training sessions.
- The statistics are also used at the All-Ohio Safety Congress and Exhibit. Data for industrial classifications, manual classifications, and counties are programmed into a mini-computer for instant retrieval by participants.
- Statistics are used to set priorities for the develop-

ment of specific safety training programs. For example, a training module on lifting techniques was based on the statistics that showed approximately 20 percent of all injuries involve the back.

Accident prevention services

The final thrust of the division's program is to improve and upgrade the delivery of industrial accident prevention services at the local level through decentralization. Decentralization is the relocation of the point at which work assignments are made and the workflow is monitored. The purpose of decentralization is to improve the timeliness of providing services at the local level by eliminating the channeling of service requests through the central office.

All of Ohio's employers are eligible to receive free accident prevention services. If a company is penalty-rated and does not have a safety professional who can zero in on safety problems, the division sponsors a safety director to establish a safety program for that company.

In addition, the division conducts workplace surveys to ascertain that working conditions meet the minimum safety requirement set by the Industrial Commission of Ohio. These surveys are free and are consultative in nature.

Engineering services are provided to evaluate the safety of machines, structures and systems. Consultation is available on the design aspects for the safe operation of machines and tools, ventilation, and noise control.

Industrial hygienists survey workplaces for air contaminants and other health hazards, such as dusts, fumes, mists, vapors, gases, and noise levels.

The division schedules basic education courses to help workers identify and correct job hazards. The safety training course covers 15 subjects in 12 2-hour sessions, and includes topics such as safety responsibility, accident investigation techniques, and job safety analysis.

"Hazard Recognition" is a series of slide and tape presentations covering 18 subjects in 25 2-hour sessions. Topics include flammable liquids, electricity, noise, trenching, ventilation, and tools.

Employers of handicapped workers can request from the division safety mobility and accommodation studies to ensure a safe working environment for handicapped workers. □

Workers' compensation insurance: recent trends in employer costs

Costs of insuring against work-related injuries and diseases have escalated rapidly since 1972; growing variation in premiums among States over the same period may indicate unequal rates of improvement in workers' compensation laws

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The workers' compensation program provides cash benefits, medical care, and rehabilitation services for persons who experience job-related injuries and diseases. Because each State operates its own compensation program, the levels of protection for workers and the associated costs of the plan to employers differ considerably among jurisdictions. Variations among jurisdictions in the insurance arrangements available to employers may also affect premiums: 32 States and the District of Columbia allow employers to purchase insurance from private carriers; six States only allow purchase from a State fund; and 12 States permit a choice between private carriers and State funds. In addition, all but four States allow employers with sufficient financial ability and satisfactory records for paying past claims to self-insure.[1]

The existence of interstate differences in the cost of workers' compensation insurance raises certain questions with policy implications. Are the variations in premiums great enough to influence employers' decisions to locate their establishments? And, do recent trends in premium levels indicate any reluctance by States to boost program benefits and costs, for fear of losing employers to lower cost jurisdictions?

As a first step toward answering such questions, this article presents estimates of employers' costs of insurance purchased from private carriers or State funds in 47 jurisdictions[2] as of July 1, 1978. Historical information since 1950 is also provided for a smaller number of jurisdictions. The following discussion is a condensed and updated version of a more comprehensive report[3] that details the methodology used to derive the cost estimates.

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Measuring insurance costs

Employers' costs of workers' compensation insurance may be measured in several ways. For purposes of this study, three combinations of employers that account for substantial percentages of national payroll were selected, and the costs of workers' compensation insurance for these groups of employers were determined for each State. This procedure makes possible an estimate of the differences in insurance costs which employers would encounter by moving among the States.[4]

The first combination consists of 45 types of employers for which workers' compensation insurance rates are available since 1950. This group includes 13 manufacturing, seven contracting, and 25 other types of firms, and accounts for almost 57 percent of the payroll covered by workers' compensation insurance.[5] The second combination represents 25 types of manufacturing employers which comprise 10 percent of covered payroll; rates for this groups are available since 1958. The third combination, for which rates are only available since 1972, includes 30 manufacturing, 13 contracting, and 36 other types of employers; these 79 types of firms account for 72 percent of covered payroll.[6]

Insurance rates for each type of employer may be obtained from a State manual. These manual rates are given in dollars per $100 of weekly earnings for each employee. Table 1 shows the average July 1, 1978, manual rates for the three combinations of employers in 47 jurisdictions. As indicated, the average manual rate for the 45 types of employers was $1.043 per $100 of pay-

roll in Alabama, while the same group of employers in Alaska had a mean rate of $2.149.

However, estimates of average manual rates provide only a beginning toward accurate interstate comparisons of workers' compensation costs. For many employers, the weekly premium is not simply the product of the manual rate and the weekly payroll. Rather, their insurance costs are influenced by premium discounts for quantity purchases, dividends received from mutual companies and participating stock companies, modifications of the manual rate resulting from the employer's own accident experience, and other factors.

Consequently, the average employer in the 45 States with private insurance carriers pays an adjusted manual rate that is 18 percent less than the published manual rate.[7] In Ohio and West Virginia—States with State insurance funds and no private carriers—manual rates are reduced, on average, 7.5 percent and 31.4 percent respectively to arrive at adjusted manual rates.[8]

The average adjusted manual rates for the three combinations of employers as of July 1, 1978, are also found in table 1. Although the average manual rate for the 45 types of employers in Alabama was $1.043 per $100 of payroll, the average *adjusted* manual rate for

Table 1. Employers' average weekly costs of workers' compensation insurance in 47 jurisdictions, July 1, 1978

Jurisdiction	Manual rates (per $100 of payroll)			Adjusted manual rates (per $100 of payroll)			Net costs of insurance (per employee)		
	45 types of employers	25 types of manufacturing employers	79 types of employers	45 types of employers	25 types of manufacturing employers	79 types of employers	45 types of employers	25 types of manufacturing employers	79 types of employers
Alabama	$1.043	$2.041	$1.295	$0.855	$1.674	$1.062	$1.544	$3.022	$1,918
Alaska	2.149	3.484	2.524	1.762	2.857	2.070	4.879	7.910	5.731
Arizona	3.055	5.546	3.686	2.505	4.548	3.023	5.294	9.610	6.387
Arkansas	1.576	3.023	1.903	1.292	2.479	1.560	2.078	3.986	2.509
California	2.604	5.173	3.238	2.135	4.241	2.655	4.816	9.567	5.989
Colorado	1.475	3.159	1.812	1.210	2.590	1.486	2.554	5.469	3.137
Connecticut	1.650	3.434	2.140	1.353	2.816	1.755	2.768	5.762	3.590
Delaware	1.742	3.544	(1)	1.428	2.906	(1)	2.922	5.944	(1)
District of Columbia	4.271	8.063	5.098	3.502	6.612	4.181	8.199	15.480	9.788
Florida	3.221	5.733	3.764	2.641	4.701	3.086	4.793	8.531	5.600
Georgia	1.313	2.886	1.634	1.077	2.366	1.340	1.912	4.202	2.380
Hawaii	2.508	5.060	3.232	2.057	4.149	2.650	3.964	7.996	5.108
Idaho	1.569	2.813	1.961	1.287	2.307	1.608	2.238	4.013	2.797
Illinois	1.685	2.965	2.012	1.382	2.431	1.649	3.063	5.390	3.657
Indiana	.585	1.109	.713	.480	.910	.585	1.015	1.927	1.239
Iowa	1.322	2.114	1.569	1.084	1.734	1.286	2.190	3.502	2.599
Kansas	1.072	2.061	1.297	.879	1.690	1.064	1.659	3.190	2.008
Kentucky	1.685	3.737	2.215	1.382	3.064	1.816	2.781	6.166	3.655
Louisiana	1.844	4.027	2.359	1.512	3.302	1.934	2.909	6.354	3.721
Maine	1.684	3.571	2.038	1.380	2.929	1.671	2.581	5.476	3.125
Maryland	1.539	3.019	1.861	1.262	2.476	1.526	2.526	4.955	3.055
Massachusetts	1.674	3.934	2.166	1.373	3.226	1.776	2.757	6.479	3.567
Michigan	2.305	6.140	3.040	1.890	5.035	2.493	4.370	11.641	5.764
Minnesota	2.220	5.081	2.800	1.821	4.167	2.296	3.733	8.543	4.709
Mississippi	1.100	1.903	1.336	.902	1.561	1.096	1.457	2.521	1.770
Missouri	.903	1.771	1.136	.740	1.452	.932	1.196	2.345	1.505
Montana	1.712	2.781	2.064	1.404	2.280	1.692	2.795	4.539	3.368
Nebraska	.865	1.573	1.015	.710	1.290	.834	1.484	2.698	1.744
New Hampshire	1.422	2.883	1.850	1.166	2.364	1.517	2.128	4.314	2.769
New Jersey	2.057	4.249	2.418	1.687	3.484	1.983	3.651	7.541	4.292
New Mexico	1.757	3.827	2.165	1.441	3.138	1.775	2.479	5.400	3.054
New York	2.158	4.678	2.639	1.770	3.836	2.164	3.844	8.332	4.701
North Carolina	.649	1.314	.830	.532	1.077	.680	.899	1.820	1.149
Ohio	1.664	2.904	1.977	1.550	2.697	1.839	3.352	5.834	3.979
Oklahoma	1.763	4.320	2.293	1.446	3.542	1.880	2.654	6.503	3.451
Oregon	3.558	7.841	4.600	2.918	6.430	3.772	6.288	13.858	8.130
Pennsylvania	1.431	3.125	(1)	1.173	2.563	(1)	2.382	5.202	(1)
Rhode Island	1.589	3.978	2.002	1.303	3.262	1.641	2.387	5.975	3.007
South Carolina	1.020	2.094	1.286	.836	1.717	1.055	1.360	2.794	1.716
South Dakota	1.027	1.725	1.222	.842	1.414	1.002	1.649	2.769	1.962
Tennessee	1.101	2.339	1.435	.903	1.918	1.177	1.666	3.538	2.171
Texas	2.137	4.338	2.708	1.753	3.557	2.220	3.293	6.683	4.172
Utah	1.087	2.000	1.320	.892	1.640	1.083	1.701	3.130	2.066
Vermont	1.067	1.996	1.267	.875	1.637	1.039	1.646	3.079	1.955
Virginia	1.074	1.645	1.283	.880	1.349	1.052	1.525	2.337	1.824
West Virginia	.962	1.914	(1)	.660	1.313	(1)	1.229	2.444	(1)
Wisconsin	.917	1.852	1.174	.752	1.519	.963	1.582	3.198	2.027

[1] Data are not available.

the group was $0.855, reflecting the 18-percent reduction. Adjusted manual rates may be interpreted as the cost of workers' compensation insurance as a percentage of payroll; thus, for the 45 types of Alabama employers, premiums were the equivalent of 0.855 percent of payroll.

The average weekly insurance premium per worker provides another measure of employers' costs of workers' compensation. The adjusted manual rate multiplied by the State's average weekly wage yields the approximate net cost of insurance to policyholders.[9] Again according to table 1, the average weekly net cost of insurance as of July 1, 1978, for the 45 types of employers in Alabama was $1.544 per employee.

Historical data

Information on employers' costs of workers' compensation insurance is available for the 45 types of employers for selected years since 1950. Data for 20 States are available for 8 years between 1950 and 1978; data for eight more States are available for 6 years between 1958 and 1978; 42 jurisdictions have data for 1972, 1975, and 1978; and by 1978, 47 jurisdictions may be compared.

The average adjusted manual rates for the 45-employer group are shown in table 2. As indicated, Alabama employers expended, on average, the equivalent of 0.282 percent of payroll on workers' compensation premiums in 1950, compared with 0.855 percent in 1978. Table 3 presents the approximate net cost to the same group of policyholders for several years between 1950 and 1978. These results show, for example, that the employers in Alabama expended a weekly average of $0.136 per worker on premiums in 1950, and $1.544 in 1978.

The data in tables 2 and 3 are valuable for tracing changes in workers' compensation costs over time in a particular State, but the volume of information makes it difficult to comprehend general developments. Tables 4 and 5 provide a compact summary of these data, permitting evaluation of interstate trends.

Table 4, for example, illustrates the changes over time in the average adjusted manual rates for the various combinations of States. Each State's observation was weighted by the size of the State's labor force in 1970 to provide results which are representative of the national experience.

The mean adjusted manual rate in the 20 States was the equivalent of 0.471 percent of payroll in 1950, 0.651 percent in 1972, and 1.185 percent in 1978. Of particular interest is the rise in cost between 1972 and 1978, which was more than double the 1950–72 increase. The average employer in the 28- and 42-jurisdiction comparisons also experienced large increases in premiums between 1972 and 1978. Data for the latter combination of jurisdictions indicate that the average employer spent an amount equal to 1.461 percent of payroll on workers' compensation premiums in 1978.[10]

Table 2. Average weekly adjusted manual rates per $100 of payroll for 45 types of employers in 47 jurisdictions, selected years, 1950 to 1978

Jurisdiction	Year							
	1950	1954	1958	1962	1965	1972	1975	1978
Alabama	$0.282	$0.310	$0.348	$0.364	$0.437	$0.479	$0.599	$0.855
Alaska	....	....	....	....	....	.832	1.721	1.762
Arizona	....	....	....	....	....	1.385	2.178	2.505
Arkansas	....	....	....	....	....	.915	1.038	1.292
California	....	....	.707	.858	1.183	1.102	1.406	2.135
Colorado	....	....	....	....	....	.649	.654	1.210
Connecticut	.660	.838	.812	.762	.689	.697	.827	1.353
Delaware	....	....	....	....	....	.578	.736	1.428
District of Columbia	....	....	....	....	....	.737	1.404	3.502
Florida	....	....	....	....	....	....	....	2.641
Georgia	....	....	....	....	....	.501	.760	1.077
Hawaii	....	....	....	....	....	.960	1.335	2.057
Idaho	.519	.664	.581	.582	.667	.865	1.283	1.287
Illinois	.437	.497	.514	.609	.624	.657	1.002	1.382
Indiana	.358	.363	.410	.398	.430	.385	.417	.480
Iowa	....	....	....	....	....	.451	.662	1.084
Kansas	....	....	....	....	....	.575	.766	.879
Kentucky	.390	.369	.394	.448	.558	.668	1.065	1.382
Louisiana	....	....	....	....	....	....	....	1.512
Maine	.415	.398	.340	.370	.337	.520	.981	1.380
Maryland	.501	.600	.661	.747	.854	.816	1.009	1.262
Massachusetts	....	....	.859	1.034	1.141	1.106	1.171	1.373
Michigan	.476	.416	.450	.694	.715	.914	1.238	1.890
Minnesota	....	....	.653	.692	.738	.854	1.240	1.821
Mississippi	.638	.727	.758	.988	.980	.751	.902	.902
Missouri	....	....	....	....	....	....	....	.740
Montana	.590	.644	.792	.721	.845	.948	1.565	1.404
Nebraska	.572	.474	.437	.527	.447	.529	.789	.710
New Hampshire	.528	.586	.531	.495	.560	.534	.746	1.166
New Jersey	....	....	.911	1.054	1.039	1.224	1.233	1.687
New Mexico	.463	.858	.838	.863	.945	.787	1.069	1.441
New York	....	....	....	....	....	.864	.973	1.770
North Carolina	.392	.512	.473	.492	.474	.420	.433	.532
Ohio	....	....	.627	.813	.820	.885	1.109	1.550
Oklahoma	....	....	....	....	....	....	1.052	1.446
Oregon	....	....	.630	1.007	....	1.491	2.074	2.918
Pennsylvania	....	....	.355	.396	.386	.387	.776	1.173
Rhode Island	.829	.930	.831	.834	.842	.767	.899	1.393
South Carolina	.658	.607	.567	.690	.696	.609	.590	.836
South Dakota	.537	.400	.315	.392	.389	.511	.635	.842
Tennessee	....	....	....	....	....	.664	.710	.903
Texas	....	....	....	....	....	....	....	1.753
Utah	.524	.545	.502	.422	.531	.503	.766	.892
Vermont	.398	.457	.524	.505	.595	.514	.588	.875
Virginia	....	....	....	....	....	.391	.539	.880
West Virginia	....	....	.268	.345	.404	.428	.671	.660
Wisconsin	....	....	.523	.556	.603	.505	.581	.752

NOTE: Dashes indicate data not available.

The average adjusted manual rate for any year obviously reflects some State data which are higher than the mean and some which are lower. For example, the mean adjusted rate for the 20 States was 0.471 percent of payroll in 1950, but the average employer in Alabama paid only 0.282 percent of payroll for workers' compensation insurance while his or her counterpart in Rhode Island paid 0.829 percent. A statistic providing a convenient summary of the extent of variation among the States around the mean cost is the standard deviation.[11] The larger the standard deviation, the greater the variation among the States in the percentage equivalent of payroll expended on workers' compensation insurance. The data in table 4 indicate that over time the

magnitude of such variation has increased.

Table 5 traces the net cost to policyholders for the 45 types of employers between 1950 and 1978. The average employer in the 20 States spent $0.249 per week on workers' compensation premiums for each worker in 1950, $0.945 in 1972, and $2.468 in 1978. Again, the sharp increase in costs after 1972 is evident from data for each combination of jurisdictions. In 1978, the mean weekly premium for employers in the 42 jurisdictions was just over $3.09 per worker.[12]

Table 5 also shows the extent of variation among the States around the net cost to policyholders. In 1950, when the average cost was $0.249 per worker per week in the 20 States, the standard deviation among the States was $0.056. By 1978, however, the mean weekly cost per worker was $2.468—up almost 10-fold since 1950—while the standard deviation ($1.113 in 1978) had grown nearly 20-fold over the same period.

The adjusted manual rate is probably the most useful and comprehensive measure of cost because, as previously noted, it may be interpreted as the percentage equivalent of payroll expended on workers' compensation insurance premiums. Chart 1 shows the trend in the average adjusted manual rates for the 45 types of employers in the 20 States for which there are comparable data since 1950.

The solid line in chart 1 tracks the weighted mean of the rates for the eight observations (years) available. The surrounding light area delineates the values of the

Table 3. Average weekly net costs of insurance per employee for 45 types of employers in 47 jurisdictions, selected years, 1950 to 1978

Jurisdiction	Year							
	1950	1954	1958	1962	1965	1972	1975	1978
Alabama	$0.136	$0.183	$0.242	$0.281	$0.369	$0.611	$0.938	$1.544
Alaska	....	....	....	....	....	1.627	4.127	4.879
Arizona	....	....	....	....	....	2.066	3.985	5.293
Arkansas	....	....	....	....	....	1.040	1.447	2.078
California	....	....	.631	.858	1.296	1.755	2.746	4.816
Colorado	....	....	....	....	....	.968	1.196	2.554
Connecticut	.353	.548	.627	.669	.663	1.008	1.467	2.768
Delaware	....	....	....	....	....	.835	1.304	2.922
District of Columbia	....	....	....	....	....	1.219	2.847	8.199
Florida	....	....	....	....	....	....	....	4.793
Georgia	....	....	....	....	....	.629	1.169	1.912
Hawaii	....	....	....	....	....	1.306	2.229	3.964
Idaho	.253	.396	.409	.447	.561	1.063	1.933	2.238
Illinois	.261	.363	.443	.588	.660	1.029	1.925	3.063
Indiana	.197	.245	.326	.357	.422	.576	.766	1.016
Iowa	....	....	....	....	....	.644	1.159	2.190
Kansas	....	....	....	....	....	.767	1.253	1.659
Kentucky	.205	.237	.299	.380	.518	.949	1.856	2.781
Louisiana	....	....	....	....	....	....	....	2.909
Maine	.195	.229	.230	.286	.286	.687	1.588	2.581
Maryland	.266	.390	.507	.639	.800	1.154	1.750	2.526
Massachusetts	....	....	.660	.888	1.073	1.569	2.037	2.757
Michigan	.271	.290	.370	.655	.740	1.493	2.480	4.370
Minnesota	....	....	.519	.620	.724	1.237	2.203	3.733
Mississippi	.273	.382	.469	.671	.729	.856	1.261	1.457
Missouri	....	....	....	....	....	....	....[1]	1.196
Montana	.310	.414	.600	.584	.750	1.330	2.695	2.795
Nebraska	.303	.308	.335	.468	.435	.782	1.430	1.484
New Hampshire	.250	.339	.363	.385	.477	.689	1.179	2.128
New Jersey	....	....	.759	.993	1.072	1.872	2.312	3.651
New Mexico	.249	.565	.650	.722	.866	.957	1.594	2.479
New York	....	....	....	....	....	1.326	1.830	3.844
North Carolina	.167	.267	.291	.335	.354	.501	.634	.899
Ohio	....	....	.509	.755	.834	1.352	2.077	3.352
Oklahoma	....	....	....	....	....	....	1.673	2.654
Oregon	....	....	.541	.949	....	2.269	3.872	6.288
Pennsylvania	....	....	.280	.346	.369	.554	1.365	2.382
Rhode Island	.404	.555	.586	.656	.726	.993	1.427	2.387
South Carolina	.284	.321	.353	.500	.553	.700	.832	1.360
South Dakota	.274	.250	.233	.330	.358	.706	1.077	1.649
Tennessee	....	....	....	....	....	.866	1.134	1.666
Texas	....	....	....	....	....	....	....	3.293
Utah	.283	.361	.392	.365	.504	.678	1.267	1.701
Vermont	.192	.270	.365	.396	.511	.684	.963	1.646
Virginia	....	....	....	....	....	.478	.808	1.525
West Virginia	....	....	.200	.279	.358	.563	1.069	1.229
Wisconsin	....	....	.412	.494	.587	.751	1.060	1.582

NOTE: Dashes indicate data not available.

Table 4. Means and standard deviations[1] of adjusted manual rates for 45 types of employers in various combinations of jurisdictions, selected years, 1950 to 1978

[Percent of total payroll]

Year	20 jurisdictions[2]		28 jurisdictions[3]		42 jurisdictions[4]	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1950	0.471	0.108	...	..	...	...
1954	.512	.145	...	..	...	...
1958	.521	.133	0.587	0.172	...	...
1962	.599	.150	.689	.212	...	...
1965	.623	.150	.760	.277	...	...
1972	.651	.171	.776	.276	0.774	0.271
1975	.871	.284	1.006	.302	.995	.328
1978	1.185	.446	1.409	.488	1.461	.543

[1] Results are based on data in table 2. Weights are each jurisdiction's total nonagricultural employment from *Employment and Earnings Statistics for States and Areas, 1939–70*, Bulletin 1370–8, (Bureau of Labor Statistics, 1971).

The weighted standard deviations were calculated using a formula provided by Cornell University Professors Paul F. Velleman and Philip J. McCarthy, to whom we express our appreciation.

[2] The 20-jurisdiction combination consists of: Alabama, Connecticut, Idaho, Illinois, Indiana, Kentucky, Maine, Maryland, Michigan, Mississippi, Montana, Nebraska, New Hampshire, New Mexico, North Carolina, Rhode Island, South Carolina, South Dakota, Utah, and Vermont.

[3] The 28-jurisdiction combination includes the 20 States listed in footnote 2 plus California, Massachusetts, Minnesota, New Jersey, Ohio, Pennsylvania, West Virginia, and Wisconsin.

[4] The 42-jurisdiction combination includes the 28 States in footnote 3 plus Alaska, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Hawaii, Iowa, Kansas, New York, Oregon, Tennessee, and Virginia.

NOTE: Dashes indicate data not available.

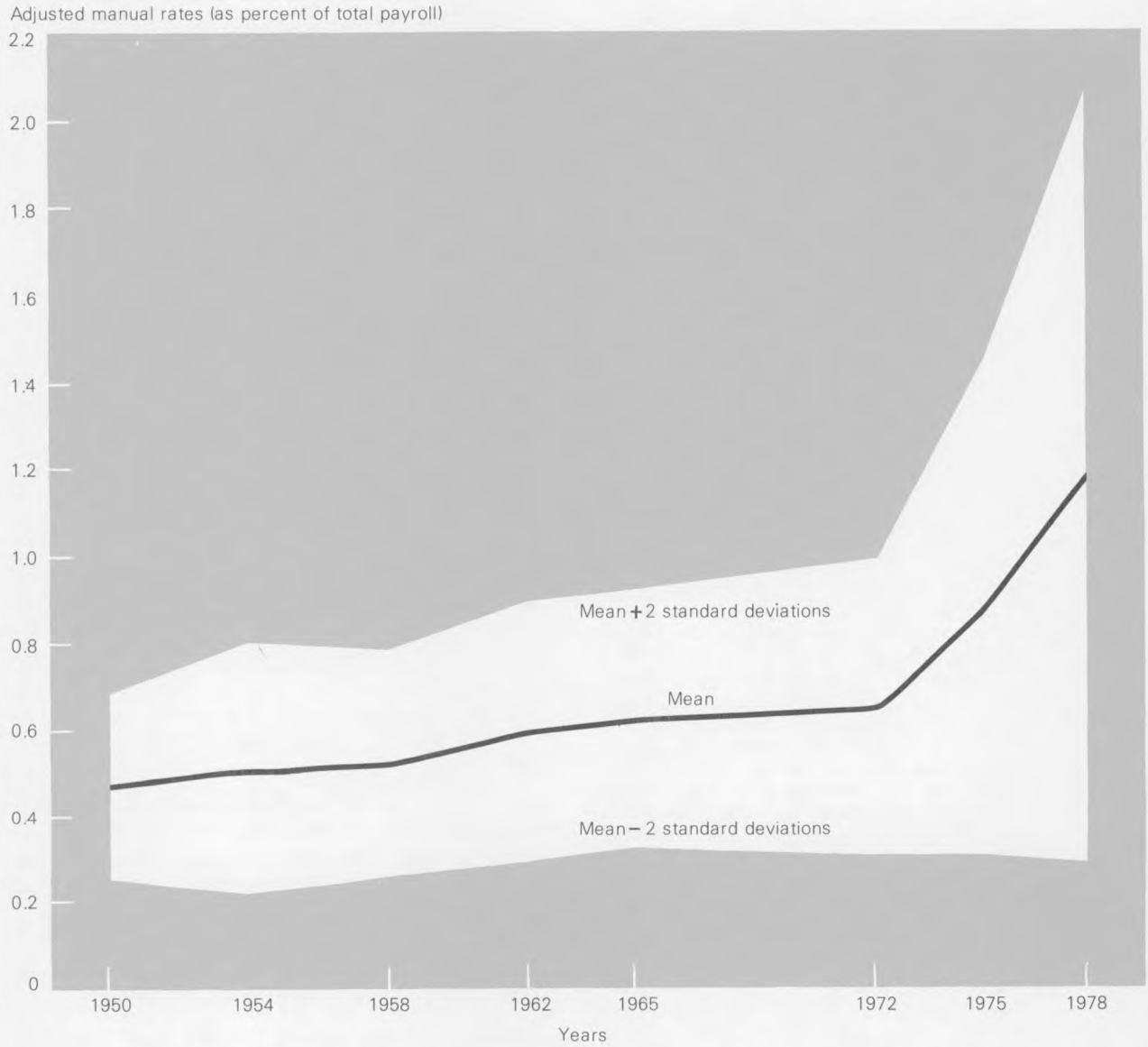
Table 5. Means and standard deviations[1] of net weekly costs of insurance for 45 types of employers in various combinations of jurisdictions, selected years, 1950 to 1978

Year	20 jurisdictions		28 jurisdictions		42 jurisdictions	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1950	$0.249	$0.056	....	.....	.....	....
1954	.330	.092	....	.....	.....	....
1958	.399	.104	$0.472	$0.153	.....	....
1962	.518	.139	.625	.215	.....	....
1965	.590	.154	.760	.317	.....	....
1972	.945	.311	1.160	.461	$1.150	$0.454
1975	1.563	.610	1.848	.643	1.817	.689
1978	2.468	1.113	3.000	1.197	3.093	1.328

[1] Results are based on data in table 3. See footnotes to table 4 for other information pertaining to this tabulation.

NOTE: Dashes indicate data not available.

Chart 1. Means and standard deviations of adjusted manual rates for employers in 20 States, selected years, 1950 to 1978



NOTE: Assuming a normal distribution, adjusted manual rates for approximately 95 percent of the States should fall within ± 2 standard deviations of the mean.

adjusted manual rates that are within 2 standard deviations of the mean. This range (mean ± 2 standard deviations) is a useful statistical measure because, assuming a normal distribution, approximately 95 percent of the individual State averages will fall within the interval.

Chart 1 and tables 3 and 4 tell a consistent story: on average, employers' premiums for workers' compensation insurance have increased sharply since 1972, and at the same time, cost differences among jurisdictions have widened considerably.

MANY FACTORS outside the purview of this article influence the level of and trend in workers' compensation insurance premiums, including the extent of litigation, differing legal interpretations of statutory provisions, the local cost of medical and rehabilitation services for victims of job-related injuries and diseases, and the approach used by the State to compensate permanent partial disabilities.[13] However, recent increases in the multistate premium averages may also be explained in part by the States' modifications of their programs in

response to recommendations contained in the 1972 Report of the National Commission on State Workmen's Compensation Laws.[14] Similarly, there are several possible reasons for the growth of interstate variations in costs, the most controversial being differences among States in the extent of improvement in their laws since 1972.[15]

The National Commission unanimously advised that Federal workers' compensation standards be enacted in 1975 if States had not adopted its 19 essential recommendations by that time. An underlying rationale for mandated standards was to reduce interstate differences in employers' insurance premiums. The Commission considered these variations a likely impediment to State reform of workers' compensation programs; State legislatures might perceive the higher costs of better insurance plans as an incentive for employers to locate in other, lower cost jurisdictions. If the growth in interstate cost differentials since 1972 is related to unequal rates of improvement in State statutes,[16] the case for Federal minimum standards for workers' compensation is considerably strengthened. □

FOOTNOTES

ACKNOWLEDGMENT: The authors thank John Bickerman, Robert Hutchens, and John Worrall for helpful comments as well as other assistance.

[1] The enumerated insurance arrangements pertain to private sector employers which are the focus of this article. These data are from C. Arthur Williams, Jr., and Peter S. Barth, *Compendium on Workmen's Compensation* (Washington, Government Printing Office, 1973). Because information on self-insurers is limited, and such employers account for a small percentage of benefit payments, these firms are excluded from the analysis.

[2] Programs in Nevada, North Dakota, Washington, and Wyoming allowed insurance only through a State fund, and the insurance classifications were not comparable with those in the remaining 47 jurisdictions. Therefore, these States were excluded from the analysis.

[3] John F. Burton, Jr., "Workers' Compensation Costs for Employers," *Research Report of the Interdepartmental Workers' Compensation Task Force,* Vol. 3 (Washington, Government Printing Office, 1979), pp. 9–32. An errata sheet for this study is available from the author.

[4] Some employers provide benefits in addition to workers' compensation to their employees who are disabled by work-related injuries or diseases. To the extent that these benefits are integrated with workers' compensation benefits, the changes in total costs for work-related disability benefits resulting from interstate movements by employers may vary from the cost differences examined in this article. There are insufficient data to make an estimate of the interstate differences in the costs of these additional benefits.

[5] In five States included in this study, employers' liability for workers' compensation premiums is limited to a maximum amount of an employee's weekly earnings ("covered pay"). In Massachusetts, for example, premiums are based on only the first $300 of weekly pay. Thus, in some States, payroll covered by workers' compensation insurance is less than total payroll.

[6] Table 3 in *Research Report of the Task Force* provides a detailed description of each of the 79 types of employers and information on the percent of payroll in 28 States accounted for by the various combinations of employers. Examples of manufacturing employers are bakeries, foundries, and furniture mills. Contracting employers include firms doing plumbing, concrete work, and street construction. "Other" establishments include retail stores, hospitals, and general employers of sales and clerical workers.

[7] The derivation of the 18-percent difference between manual rates and adjusted manual rates is provided in Section D of *Research Report of the Task Force.* The 18-percent figure is a national average based on experience in 34 jurisdictions. The actual difference will vary somewhat among States, depending on such factors as the relative importance of mutual companies, participating stock companies, and nonparticipating stock companies.

[8] Section D of *Research Report of the Task Force* explains the derivation of the percentages used to reduce manual rates in order to calculate adjusted manual rates in Ohio and West Virginia.

[9] As explained in Section F of *Research Report of the Task Force,* the net cost to policyholders in a State (or other jurisdiction) is calculated by multiplying the product of the adjusted manual rate and the State's index number (which measures the State's earnings relative to U.S. earnings in 1970) by the national average of weekly earnings for workers covered by the unemployment insurance program. For 1976 (the latest year for which data were available when the tables for this article were prepared), the latter figure was $203.88.

[10] The text indicates that in the 42 jurisdictions, the 45 types of employers spent, on average, 1.461 percent of payroll on workers' compensation premiums in 1978. This combination of jurisdictions and employers was chosen to provide historically comparable data. For the largest combination of employers (79) and jurisdictions (44) shown in table 1, the average employer spent the equivalent of 1.843 percent of payroll on workers' compensation premiums in 1978, based on weighted observations.

The 1.843-percent figure is close to Daniel Price's estimate that premium costs nationally (including Federal and self-insurance, but excluding programs financed by general revenue, such as the black lung program) were 1.85 percent of payroll in 1978. Price's estimate is included in "Workers' Compensation: 1978 Program Update," Social Security Bulletin, October 1980, pp. 3–10.

For a comparison of the estimating procedures used by Price and Burton, involving 1975 data, see *Research Report of the Task Force,* footnote 35.

[11] For an elementary discussion of the standard deviation, see Daniel B. Suits, *Statistics: An Introduction to Quantitative Economic Research* (Chicago, Rand McNally and Co., 1963), pp. 38–52.

[12] For the largest combination of employers (79) and jurisdictions (44) shown in table 1, the average employer spent $3.915 per week per worker on workers' compensation insurance in 1978, based on weighted observations.

[13] For a discussion of some of these factors, see John F. Burton, Jr., *The Significance and Causes of the Interstate Variations in the Employers' Costs of Workmen's Compensation* (Ph.D. diss., University of Michigan, 1965). The results of a study of interstate cost differences associated with various approaches to permanent partial disability benefits may be found in John F. Burton, Jr. and Wayne Vroman, "A Report on Permanent Partial Disabilities under Workers' Compensation," *Research Report of the Interdepartmental Workers' Compensation Task Force,* Vol. 6 (Washington, Government Printing Office, forthcoming).

[14] (Washington, Government Printing Office, 1972).

[15] Laws in effect on January 1, 1980, in 52 jurisdictions (including the District of Columbia and Puerto Rico) were on average in compliance with 12.03 of the 19 essential recommendations of the National Commission, according to information provided in January 1980 by the Division of State Workers' Compensation Standards of the Employment Standards Administration, U.S. Department of Labor. The range among the jurisdictions in 1980 was considerable, with Montana, New Hampshire, and Ohio in compliance with at least 15.5 of the essential recommendations, while Arkansas, Mississippi, and Tennessee were in compliance with 8.5 or fewer of the recommendations.

[16] The assumed relationship between cost increases and improvements in State laws from 1972 to 1978 are being examined in an ongoing study by John F. Burton, Jr.

Workers' compensation in 1980: summary of major enactments

Broader coverage and levels of benefits received the most attention among the 46 jurisdictions which met during the year, although several States did set new standards for measuring hearing loss

LAVERNE C. TINSLEY

All but six State legislatures convened in 1980, resulting in enactment of 136 amendments to State workers' compensation laws.[1] Twenty-three jurisdictions carried over legislation introduced from 1979 to the 1980 sessions. Most amendments either revised coverage or increased or supplemented weekly benefits.

Twenty-two jurisdictions amended their coverage laws. California extended coverage to off-duty peace officers and firefighters performing work-related duties anywhere in the State. Colorado and Missouri broadened coverage to include sheriffs and deputy sheriffs and Ohio extended coverage to jail inmates.

Domestic employees employed by an employer for 240 hours or more during a calendar quarter will be covered in the District of Columbia next year. New Jersey now requires that domestic servants and household employees be covered by homeowners' policies.

Missouri adopted a provision that excludes from mandatory coverage salaried corporate officers and private employment where the total gross annual payroll is under $10,000 (except for the salaries of certain relatives). Sole proprietors and partners may elect coverage for themselves in Minnesota, Vermont, and Virginia. In New Mexico, employers with fewer than three employees and who are generally exempt from occupational disease coverage may also elect coverage.

By October 1980, 43 States and the District of Columbia had increased maximum weekly benefits for temporary total disability, and 40 States had increased benefits for total disability and death through automatic adjustments of maximum benefit levels linked to each State's average weekly wage. (See table 1.)

The percentage of the State weekly wage on which benefits are based was raised from 100 to 150 percent in Nevada, from 60 to 100 percent in Kentucky, and from 72 to 75 percent in Kansas. The percentage of the worker's wage for determining weekly benefits was increased from 66–2/3 to 70 percent in New Jersey. Effective in 1981, maximum weekly benefits in Missouri will be based on a percentage of the State average weekly wage rather than being a statutory amount. Maximum benefits were also increased statutorily in five other jurisdictions.

The aggregate amount of compensation for death was increased from $55,000 to $75,000 in California. Children who are dependent and full-time students, in Mississippi, are newly entitled to receive death benefits until they are 23 years of age.

The burial allowance was increased from $1,500 to $3,000 in Louisiana, and from $750 to $2,000 in New Jersey.

Awards for disfigurement to the head, neck, hands, or arms were increased from $2,000 to $4,000 in Missouri.

New standards were established for occupational hearing loss compensation at frequencies ranging from 1,000 to 3,000 cycles per second in Illinois and New Jersey, and from 500 to 3,000 cycles per second in Iowa.

Louisiana enacted penalty provisions to prohibit employers from refusing to hire an applicant or rehire an employee solely because such person had previously

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filed a workers' compensation claim.

References to "workmen's compensation" were changed to "workers' compensation" in Kentucky, Missouri, New Jersey, and Tennessee.

Other amendments pertaining to benefits, coverage, medical care, rehabilitation, administration, and other aspects of State systems are included in the following State-by-State summary.

Alaska

Coverage was extended to public high school students in work-study programs while they are working outside the school.

A Workers' Compensation Study Commission was established to review the workers' compensation law and recommend changes to eliminate outdated and inadequate provisions, to provide fully for the rights of workers injured in the State, and to minimize costs to employers.

Arizona

Definitions for "co-employee", "heart-related or perivascular injury, illness or death", "mental injury, illness or condition", and "weakness, disease or other condition of the heart or perivascular system" were added to the act.

An amendment was added to the Arizona Constitution which allows persons injured while engaged in manual or mechanical labor, or in case of death, the dependents, the option to accept benefits or retain the right to sue their employers.

The statute of limitations for claim filing changed so that a

Table 1. Jurisdictions that changed maximum weekly temporary total disability benefits during 1980

Jurisdiction	Former maximum	New maximum
Alabama	$136.00	$148.00
Alaska	$654.30	$650.00
Arizona	$192.32	$203.86
Arkansas	$112.00	$126.00
Colorado	$222.74	$244.65
Connecticut	$261.00, plus $10 for each dependent under 18 years of age, not to exceed 75 percent of employee's wage	$285.00, plus $10 for each dependent under 18 years of age not to exceed 75 percent of employee's wage
Delaware	$164.71	$175.28
District of Columbia	$426.40	$456.24
Florida	$195.00	$211.00
Hawaii	$200.00	$215.00
Idaho	$115.80 to $173.70 according to number of dependents, plus 7 percent of State average weekly wage for each child up to 5	$121.20 to $181.80 according to number of dependents plus 7 percent of State average weekly wage for each child up to 5
Illinois	$353.19	$358.95
Indiana	$130.00	$140.00
Iowa	$352.00	$384.00
Kansas	$148.00	$170.00
Kentucky	$131.00	$217.00
Louisiana	$149.00	$164.00
Maine	$306.23	$332.16
Maryland	$220.00	$241.00
Massachusetts	$227.31, plus $6 for each dependent; aggregate not to exceed worker's average weekly wage	$245.48, plus $6 for each dependent; aggregate not to exceed worker's average weekly wage
Michigan	$156.00 to $185.00, according to number of dependents	$171.00 to $200.00, according to number of dependents
Minnesota	$226.00	$244.00
Missouri	$125.00	$150.00
Montana	$198.00	$219.00
Nevada	$228.20	$245.09
New Hampshire	$195.00	$213.00
New Jersey	$164.00	$185.00
New Mexico	$186.38	$201.04
North Carolina	$194.00	$210.00
North Dakota	$196.00, plus $5 for each dependent child; aggregate not to exceed worker's net wage	$213.00, plus $5 for each dependent child; aggregate not to exceed worker's net wage
Ohio	$241.00	$258.00
Oklahoma	$141.00	$155.00
Oregon	$241.70	$261.32
Pennsylvania	$227.00	$242.00
Rhode Island	$199.00, plus $6 for each dependent; aggregate not to exceed 80 percent of worker's average weekly wage	$217.00, plus $6 for each dependent; aggregate not to exceed 80 percent of worker's average weekly wage
South Carolina	$185.00	$197.00
Tennessee	$107.00	$119.00
Texas	$119.00	$133.00
Utah	$210.00, plus $5 for dependent spouse and each dependent child up to 4, but not to exceed 100 percent of State average weekly wage	$230.00, plus $5 for dependent spouse and each dependent child up to 4, but not to exceed 100 percent of State average weekly wage
Vermont	$192.00, plus $5 for each dependent under 21 years of age	$208.00, plus $5 for each dependent under 21 years of age
Virginia	$199.00	$213.00
Washington	$186.88	$221.72
West Virginia	$237.00	$262.08
Wisconsin	$218.00	$233.00
Wyoming	$292.35	$326.45

NOTE: Benefit increases are based on the applicable State's average weekly or monthly wage, and for the District of Columbia, the national average weekly wage. However, nine States (Arizona, Arkansas, California, Georgia, Indiana, Mississippi, Nebraska, New York, and Tennessee) and Puerto Rico prescribe statutory amounts; six States (California, Georgia, Mississippi, Nebraska, New York, and South Dakota) and Puerto Rico are not listed because no increases for temporary total disability were legislated during 1980.

late claim can not be considered unless the claimant is deemed incompetent or justifiably relied on a "material representation" by the Industrial Commission, employer, or insurance carrier.

The Second Injury Fund is now responsible for one-half of the compensation award above a 50-percent reduced monthly earning capacity for a second injury to a preexisting scheduled injury.

The maximum amount used for computing the employee's average monthly wage was raised from $1,250 to $1,325.

Scheduled injuries will now be paid solely for fixed periods, regardless of the claimant's earning capacity, if compensation has not been awarded for permanent partial disability.

The time for requesting a hearing was extended from 60 to 90 days.

California

Coverage was extended to off-duty peace officers or firefighters who are injured, killed, or disabled while engaged in the performance of their duties anywhere in the State. Employees of the San Luis Obispo County sheriff's office disabled in the line of duty are entitled to 1 year of disability leave, in lieu of temporary disability benefits, if such leave is approved.

Employers must post in a conspicuous place at the worksite, written notice of compensation coverage, including names of persons responsible for claims adjustment.

The average weekly wage used for determining total disability payments was increased from $231 to $262.50. The total maximum compensation for death was increased from $55,000 to $75,000, according to the number of dependents.

The Asbestos Workers' Account was established in the Uninsured Employer's Fund to provide temporary disability and medical benefits to asbestos workers suffering from asbestosis when the liable employer either cannot be located or fails to provide benefits within 30 days of the disability.

The director of the Department of Industrial Relations is authorized to adopt rules and regulations to implement the statutory coverage provisions relating to uninsured employers. Legal actions may now be taken against an uninsured employer.

The administrative director of the Division of Industrial Accidents no longer has authority to change regulations regarding the privacy of certain employee records.

All attorneys employed as referees by the Division of Industrial Accidents must now adhere to the California Code of Judicial Conduct.

Delivery of notices in third party actions will be made by personal service or certified mail, instead of by registered mail.

Claimants traveling to medical facilities for examination by a physician will be reimbursed 21 cents for each mile traveled, instead of the previous 14 cents.

Colorado

Municipalities can now elect coverage for unpaid appointed or elected officials. Coverage was extended to deputy sheriffs and persons who serve on posses.

Tax paid by insurers into the Major Medical Insurance Fund was raised to 1.75 percent of the premiums received, from 1.25 percent.

Connecticut

Interlocal risk management pools (established to insure high-risk employers) now have authority to operate separate pools to cover hypertension and heart disease risks.

Supplemental compensation for recipients on-the-rolls prior to October 1977 was changed from a one-time 25 percent increase to an annual cost-of-living increase.

Dependent children who are full-time students are eligible for benefits until age 22 (previously, the limit was 18 years).

Claimants will now be reimbursed 15 cents for each mile traveled to medical treatment facilities, instead of the previous 10 cents per mile.

The lung function test now applies to all foundry workers, except those who are exempted for religious reasons.

District of Columbia

The city council passed, and the mayor signed, a bill establishing the District of Columbia Workers' Compensation Act of 1979, effective October 1, 1981. This action was taken to simultaneously remove private employment in the District of Columbia from the provisions of the Longshoremen's and Harbor Workers' Compensation Act, and to transfer administration of the District of Columbia's compensation law from the U.S. Department of Labor to the District of Columbia.

However, the legality of the act is in doubt because on September 26, 1980, D.C. Superior Court Judge John F. Doyle ruled that the reform law passed by the D.C. city council violated the home rule charter of the city. He concluded that the city, therefore, had illegally legislated the Federal program out of existence. The council appealed Judge Doyle's decision in the U.S. Court of Appeals for the District of Columbia on November 12, 1980, requesting an expedited decision.

Under the new act, coverage will include only workers employed in the District of Columbia and injured or killed as a result of their employment. Domestic workers also will be covered if they worked for the same employers at least 240 hours during a calendar quarter. Compensation for illness or death resulting from a job-related disease is the responsibility of the employer where the last known exposure occurred.

The same maximum will apply for both weekly disability and death benefits; however, benefits to survivors will only be allowed if death was caused by a job-related injury or illness. Minimum compensation for total disability and death is 25 percent of the maximum weekly benefit amount, rather than 50 percent of the national average weekly wage as required by the Longshoremen's and Harbor Workers' Compensation Act. Permanent partial disability awards can now be reviewed at any time up to 3 years after either the date of the last compensation payment or the rejection of the claim. For those receiving benefits for permanent total disability or death, a supplementary benefit is provided of no more than 5 percent of the maximum weekly benefit received the preceding year. However, this provision does not become effective until the average weekly wage in the District of Columbia exceeds $396.78.

Compensation for total disability will be paid at 66–2/3 percent of the employee's average weekly wage. In case of death, compensation to all survivors is not to exceed that amount. Eighty percent of the employee's spendable earnings will be considered as 66–2/3 percent of his or her average weekly wage. Benefits for disability or death will be offset by no more than 80 percent of disability compensation under the Social Security Act or an employee benefit plan, subject to the Employee Retirement Income Security Act.

The mayor will be required to appoint a panel of physicians from which an injured employee must select an attending physician.

Attorney fees will be limited to no more than 20 percent of the actual benefit the attorney secured for the claimant.

The costs of administering the act will be met by assessing

insurance carriers and self-insured employers based on the share of payments made by each to the total amount of all payments during the preceding fiscal year.

Florida

General contractors are now liable for coverage for all employees of a subcontractor, unless the subcontractor already provides coverage.

The basis for computing temporary partial disability benefits was changed from a "monthly" to "weekly" rate.

An award must now be paid within 30 days, rather than the previous 20 days.

The definition for "accident" now includes the acceleration or exaggeration of a preexisting disability.

An employer must now provide at least two physicians from which the employee must select one for treatment.

Changes in medical fee schedules will be determined annually by a panel consisting of the Secretary of Labor and Employment Security, the Insurance Commissioner, and the State medical consultant of the Division of Workers' Compensation.

Pharmacists were added to the list of health care providers, making them subject to evaluation by the Division to determine if their services are acceptable based on medically accepted standards and the medical fee schedules.

Medical reports required from self-insurers must be filed with the Division of Workers' Compensation within 15 days, instead of the previous 5 days.

An injured employee is no longer required to notify the Division within 30 days of an injury.

Georgia

Group self-insurance will be allowed in the State next year.

A requirement was enacted for both public and private corporations to provide employee coverage.

Hawaii

Permanent total disability awards made before July 1, 1980, are now to be increased annually.

A rehabilitation unit, in the Department of Labor and Industrial Relations, will refer to the director employees suspected of having permanent disabilities and those who have permanent disabilities and who can be physically or vocationally rehabilitated.

Enrollment in a rehabilitation program will not affect a disabled worker's entitlement to temporary total disability compensation, if the worker earns no wages during the enrollment period.

Labor organizations are exempted from third party liability for injuries to its members on the basis of the organizations' failure to furnish or enforce health or safety regulations.

Illinois

Real estate brokers, broker-salesworkers, salesworkers paid solely by commission, and volunteers in recreational programs and drug and alcohol rehabilitation programs are now excluded from workers' compensation coverage.

The Department of Insurance must adopt rules that will permit two or more employers with similar risks to group self-insure.

Employers may now obtain life insurance policies to cover liabilities for work-related death benefits.

Maximum weekly benefit levels for permanent partial disability are frozen (at $269.21 or 100 percent of the State's average weekly wage) from January 1, 1981, through December 31, 1983.

The definition of "average weekly wage" was redefined to mean the actual earnings of the employee at the time of the injury during the 52 weeks ending with the pay period immediately preceding the injury.

All time periods of compensation for fractures were reduced: for skull and vertebrae fractures, from 60 to 6 weeks; for each facial bone fracture, from 20 to 2 weeks; for each transverse process, from 30 to 3 weeks; and for the loss of a kidney, spleen, or lung, from 100 to 10 weeks.

New standards were established for compensation of occupational hearing loss at frequencies of 1,000, 2,000, and 3,000 cycles per second and a causation level of 90 decibels. Employers are no longer responsible for cases of occupational hearing loss before July 1, 1975, and the new standards do not apply to hearing loss resulting from trauma or explosion.

Attorney fees are limited to 20 percent of the amount of compensation recovered and paid, unless otherwise approved by the Industrial Commission.

The Industrial Commission must publish a workers' compensation handbook for employers and employees. The Director of Insurance is required to publish informational booklets on workers' compensation insurance rates and the rights and obligations of employers and employees under the Workers' Compensation and Occupational Disease Acts.

Indiana

Coverage was extended to participants in a township poor relief program who are satisfying assistance requirements. A wage rate was set as the basis for computing his or her workers' compensation benefits.

Iowa

New standards require determining the severity of occupational hearing loss based on using frequencies of 500, 1,000, 2,000, and 3,000 cycles to measure hearing levels. A maximum of 175 weeks of compensation can be received for hearing loss but compensation will not be paid to an employee who fails to use hearing protective devices.

Kansas

Self-insurance is now permitted for cities, counties, school districts, vocational-technical schools, or community colleges. A separate reserve fund was created to pay claims, judgements, and expenses of these entities.

The director of the Division of Workers' Compensation, now has authority to conduct hearings and determine all disputes on medical charges and interest due.

Kentucky

The maximum weekly benefit levels were increased to 100 percent (formerly 60 percent) of the State average weekly wage for total disability; and, to 75 percent (formerly 60 percent) for permanent partial disability and death. All provisions for scheduled injuries were deleted. Payment for permanent partial disability will be determined by multiplying the weekly benefit for permanent partial disability by the percentage of disability or the wage earning capacity, whichever is greater, for a maximum period of 425 weeks.

The maximum period for vocational rehabilitation was extended from 26 to 52 weeks. During rehabilitation, the percentage for calculating the employee's average weekly wage will be raised from 66–2/3 percent to 80 percent times the percentage of disability.

The definition of "injury" now includes any work-related harmful change in the human organism, "arising out of and in

the course of employment." Previously, communicable diseases were not included unless the risk of contacting such disease increased by the nature of the employment.

The Pneumoconiosis Fund was abolished and all unfunded liabilities transferred to the Special Fund.

The time limit for notifying the Board of Workers' Compensation that a claim will be disputed was increased from 60 to 90 days.

A sum of $150,000 was appropriated from the General Fund to finance a study of the State's workers' compensation program. The study will review the National Council on Compensation Insurance rating procedures, compare premium levels in Kentucky with other jurisdictions, and analyze the feasibility of a computer system and of a State Fund.

References to "workmen's" were changed to "workers' " throughout the Act.

Louisiana

Surviving parents are now entitled to a $20,000 lump-sum payment in death cases where there are no other legal dependents.

Burial expenses were doubled from $1,500 to $3,000.

The statute of limitations for filing a claim for an occupational disease was extended to 6 months from the time: (1) of the initial manifestation; (2) of the disability resulting from the disease; or, (3) that the employee knew or had reason to suspect that the disease is occupationally related. For claims arising from death due to an occupational disease, the filing period was extended to 6 months from the date of death or from the date the claimant has reason to believe that the death resulted from an occupational disease.

Employers are now required to conspicuously post notices regarding time limitations for filing occupational disease claims; failure to comply will allow claims to be filed against the employer for an additional 6 months.

Attorney fees were raised to 20 percent of the first $10,000 of an award (formerly $5,000) and 10 percent for any additional amount.

Employers are prohibited from refusing to hire applicants or discriminating against employees solely because they had previously filed compensation claims. For such discrimination, an employee is eligible for up to 1 year's salary in addition to a reasonable attorney's fee.

Injured employees are now permitted to file petitions in the District Court of the parish in which either the employee or his or her dependents live.

Maine

A commissioner whose term has expired is now entitled to $50 per day for time spent preparing decisions in cases where all evidence was heard and no decision was made.

Maryland

Mandatory coverage was authorized for participants in the State's Workfare Program and for jurors serving on State juries.

Minimum weekly compensation for temporary total disability was increased from $25 to $50.

The time in which an employee must notify the employer of his or her occupational disease was extended from 30 days to 1 year after the employee knows he or she has a disease.

Massachusetts

Third party actions in industrial accident cases will only be enforced 7 months after the injury and after compensation is paid.

Interest on late payments of compensation awards was increased from 6 to 10 percent.

Minnesota

Coverage now includes certain volunteer workers whose services are accepted or contracted.

The following may elect coverage for certain employed relatives: owners or partners of a business or farm, a family farm corporation, and a closely-held corporation which had fewer than 22,880 hours of payroll in the preceding year.

The definition of "family farm" now includes any farming operation which pays or is obligated to pay less than $8,000 in wages to farm laborers; and, excludes from the definition of "employee," farmers and members of their families who exchange work with other community farmers.

Supplementary benefits based on the statewide average weekly wage for the preceding year will be adjusted annually on October 1.

Payment of benefits was authorized for dependents of State, county, or city medical care employees who die from tuberculosis contacted by exposure to tuberculosis patients or contaminated material in the course of employment. An employee who contacts tuberculosis from work exposure is permitted to select a physician or medical care facility for treatment.

Mississippi

Dependent children who are full-time students are now eligible for death benefits until age 23 (previously the limit was 18 years).

Missouri

Coverage was extended to sheriffs and deputy sheriffs. Exempted from coverage are salaried corporate officers and private industries with a total gross annual payroll of under $10,000 in the preceding year; wages paid to certain relatives are not included in calculating gross annual payroll.

Maximum weekly benefits for total disability and death were raised from $125 to $150. On August 13, 1981, benefits will change from a statutory amount to 66–2/3 percent of the State average weekly wage. On January 1, 1981, maximum weekly benefits for permanent partial disability will change to 66–2/3 percent of 60 percent of the State average weekly wage.

Awards were increased from $2,000 to $4,000 for disfigurement to the head, neck, hands, or arms.

A worker is now eligible to receive compensation for the first 3 days of an illness after a waiting period of 14 days, instead of the previous 4 weeks. The healing period for permanent partial disability was lengthened from 40 to 52 weeks.

A surviving husband is no longer required to prove dependency for benefits.

The statute of limitations for filing a claim was increased from 1 to 2 years and up to 3 years from date of injury if the employer did not file a report of injury.

Interest on unpaid workers' compensation benefits was raised from 6 to 8 percent.

References to "workmen's" were changed to "workers' " throughout the act.

New Jersey

Coverage was extended to recipients under the General Public Assistance Law.

All homeowner's or comprehensive personal liability insurance policies must cover injuries to domestic servants and household employees.

The percentage of the worker's wage on which benefits are

based for disability and, in death cases, for a spouse with children was raised from 66–2/3 to 70 percent. Maximum weekly benefits for disability and death were increased from 66–2/3 to 75 percent of the State average weekly wage. Minimum weekly benefits for total disability and death were changed from $15 to 20 percent of the State average weekly wage, and from $10 to $35 for permanent partial disability.

Temporary disability benefits can now be received for 400 weeks, up from the previous 300 weeks. The number of weeks of compensation for specified losses was extended as follows: loss of a hand, from 230 to 245 weeks; loss of an arm, from 300 to 330 weeks; loss of a foot, from 200 to 230 weeks; and loss of a leg from 275 to 315 weeks. In cases of non-scheduled injury, where the disability is determined as a percentage of permanent total disability, the maximum period of compensation increased to 600 weeks from 550 weeks.

Standards for measuring occupational hearing loss were established at frequencies of 1,000, 2,000, and 3,000 Hertz. A maximum of 200 weeks of compensation is authorized for total loss of hearing and for partial disability for such periods as are proportionate to the relation which the calculated percentage loss bears to 100 percent hearing loss.

A special adjustment of benefits was established for employees receiving benefits at a rate applicable before January 1, 1980. For fiscal year 1981, the adjustment rate is 35 percent; for fiscal 1982, 75 percent; and for fiscal 1983, 100 percent. These benefits will be offset by social security disability payments, black lung payments, or an employer's share of disability pension payments.

The burial allowance was increased from $750 to $2,000.

Lump-sum awards are now permitted if approved by the Division of Workers' Compensation.

Either spouse is now a presumptive dependent for survivors benefits; previously, only widows were specified in the law.

For occupational disease claims, the statute of limitations will not begin to run until the claimant has actual knowledge of the condition and its relation to work. Formerly, the statute began when the claimant first had knowledge of the disability.

By enactment, "workmen's" was changed to "workers' " throughout the law.

New Mexico

Employers who are generally exempt from provisions of the Occupational Diseases Disablement Law must now file notices of acceptance, rejection, or revocation of coverage with the Superintendent of Insurance.

New York

Either alien spouse is now entitled to compensation benefits; previously, only widows were eligible.

In the event of the death of a corporation officer, the dependents are entitled to compensation from the Uninsured Employers' Fund.

The waiting period before compensation for occupational hearing loss was shortened from 6 to 3 months after removal from exposure to harmful noise. Removal from exposure may be accomplished by the use of effective ear protection devices provided by the employer.

An employee's failure to file a claim for occupational hearing loss within the required 2-year period will not bar his or her claim, if the claim is filed within 90 days after knowledge that the loss of hearing is employment-related. An employee disabled prior to October 1, 1980, will have 6 months from such date to file a claim.

Assets in Uninsured Employers' Fund are now set at a maximum of $600,000, formerly $300,000.

Full disclosure is required by the employer of all accidents that occur in the business operation of the employer.

North Carolina

Confirmed cases of brown lung disease or byssinosis will be compensable, regardless of the date of the employee's last injurious exposure.

Ohio

Coverage was extended to jail inmates and probationers in work relief programs.

Employers contributing to the Disabled Workers' Relief Fund will be assessed an additional 5 to 10 cents per $100 of payroll.

The Marine Industry Fund was established to insure enrollees in the marine industry.

Oklahoma

Excluded from coverage is agricultural or horticultural employment in which the employer had a gross annual payroll of under $100,000 (previously $25,000) in the preceding year. Also exempted are licensed real estate sales associates or brokers who are paid solely by commission, and farm employments with annual payrolls in the preceding year of $100,000 (formerly $25,000).

Pennsylvania

The definition of "employee" was broadened to include any paid firefighter who is a member of a volunteer fire company during off-duty hours. Similarly, coverage was extended to all members of volunteer ambulance corps, volunteer rescue workers, and lifesaving squads.

Rhode Island

Effective the first fiscal year of 1981, coverage will be compulsory for employees of the city of Providence. Group self-insurance is now allowed for hospitals with the approval of the Director of Labor.

Legislation extended the existence of the Dr. John E. Donley Rehabilitation Center, the State's rehabilitation center, until June 30, 1983.

South Carolina

In cases of permanent partial disability, prostheses will be furnished as long as needed by the injured employee.

Employers must report all injuries that require medical or surgical attention to the Industrial Commission within 10 days after knowledge of the injury. Employers who refuse or neglect to submit the required forms, records, or reports will be fined $50 (formerly $10) for each offense. Also, employers who willfully refuse payment of compensation will receive fines ranging from $100 to $1,000, or 30 days to 6 months imprisonment, or both.

Information compiled by treatment facilities pertaining to workers' compensation claimants must be made available, upon request, to employers, carriers, attorneys, or the Industrial Commission.

South Dakota

Coverage was extended to employees of the Game, Fish, and Parks Department.

The time limit in which an employer must file an accident report was shortened from 30 to 10 days.

Tennessee

Self-insurance is now permitted with the posting of acceptable negotiable securities or a bond worth at least $125,000, and certified evidence of financial ability to pay all claims.

Maximum weekly benefits for disability and death were increased from $107 to $119; and the total maximum from $42,800 to $47,600. A lump-sum payment of $10,000 will be paid to a deceased employee's estate, if there are no dependents.

A joint legislative committee was established to study the State's workers' compensation system and make recommendations to the 92nd General Assembly by February 1, 1981.

An enactment expanded the definition of "total disability" from coal workers' pneumoconiosis to include employees who would be entitled to benefits under the Black Lung Benefits Act of 1972.

References to "workmen's" were changed to "workers' " throughout the law.

Vermont

The Military Department may elect coverage for employees whose salaries are paid fully or partially with Federal funds.

Virginia

Sole proprietors and partners may now elect coverage for themselves. The Secretary of Administration and Finance is authorized to implement a workers' compensation program for State employees.

Payment of compensation in a lump sum in lieu of periodic payments will be reduced by the disability retirement benefits a disabled worker or the worker's surviving dependents are entitled to receive.

Employers are required to furnish medical care and prosthetic appliances for loss of hearing injuries.

Reimbursement was authorized for employers who pay compensation and medical and vocational rehabilitation expenses while awaiting an award decision from the Industrial Commission.

A regional peer review committee will be established in each health systems area to evaluate and determine the level, quality, duration, and cost of health care services.

The Industrial Commission is authorized to order an injunction against employers who fail to comply with the workers' compensation law.

The Subcommittee of the House Committee on Labor and Commerce was requested to continue its study of the factors accounting for the accelerating increases in workers' compensation premiums.

Washington

Under certain conditions, the State Fund can insure employers as a group.

Costs of supplies and equipment are now included in the coverage of vocational rehabilitation.

Wisconsin

Coverage was extended to State legislators on official travel and to State legislators serving as committee members or as members of other official bodies.

Maximum weekly benefits for permanent partial disability were raised from $65 to $70. The death benefit payable to parents when there are no wholly dependent survivors was increased to $5,000, from $2,000.

Interest was increased from 6 to 7 percent on late death benefits payments.

It is now mandatory for the Department of Industry, Labor and Human Relations to employ a specialist in physical, medical, and vocational rehabilitation.

Requests by employers for employees to submit to medical examinations must not involve travel in excess of 100 miles from the employee's home.

Payments from the Work Injury Supplemental Benefit Fund to an employee whose claim is barred by the statute of limitations will be supplemental to any payment under any Federal insurance benefit program.

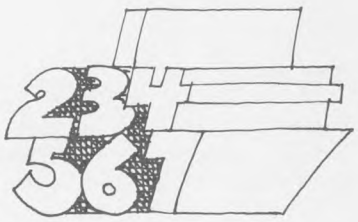
All workers' compensation disability benefits will be reduced if the employee is also receiving social security disability.

The statute of limitations for initiating a compensation action was extended from 10 to 12 years. A claim for occupational deafness can not be filed until 14 days (formerly 2 months) after removal from the noisy employment. □

FOOTNOTE

[1] Arkansas, Montana, Nevada, North Dakota, Oregon, and Texas did not meet in 1980.

The Anatomy of Price Change



Two Consumer Price Index issues: weighting and homeownership

JANET L. NORWOOD

In general terms, the purpose of indexation is to adjust Federal payments for changes in the cost of living. To achieve this objective, an accurate index of living costs is required. Since the Consumer Price Index is the major economic indicator designed to measure changes in family purchasing power, it has been a natural choice as the primary indexing mechanism. The CPI is a good measure of the changes in purchasing power of the average family represented in the index, but like any other statistical measure, the CPI is not perfect. In recent years, several questions concerning the methodology used to construct the CPI have been widely discussed. It is important that public policy decisions on indexation reflect a full understanding of these issues.

The fixed market basket. The CPI is constructed by obtaining the prices, each month, of a set of goods and services purchased in the base period (currently 1972 and 1973). This market basket is based upon a survey of consumers conducted during these years. BLS practice has been to hold the weights for the mix of goods and services purchased during the base period constant until a major revision of the index occurs—about every 10–12 years. The market basket is kept constant deliberately in order to isolate price changes from changes which may occur in living standards.

In recent years, as prices have continued to climb, some people have argued that the CPI market basket does not adequately represent current experience. They contend that rational consumers shift their purchases in response to changes in relative prices and suggest that the CPI might overestimate the cost of maintaining current living standards.

Historically, differences in weighting patterns have not usually created large differences in price index measures. BLS research suggests that between CPI revisions in the past, the effect of consumption shifts on price measurement has been no more than a tenth or so of an index point per year. Of course, past experience on this question may not be conclusive, especially in the most recent years when inflation has been running at double-digit rates and large changes in certain prices (energy, for example) have been experienced.

Another way to gain perspective on the effect of weighting patterns on price index measurement is to examine the Commerce Department's Deflator for Personal Consumption Expenditures, for this index is published in alternative versions with different weights. The two most relevant versions of the PCE Deflator for 1980 differ by only 0.4 percentage points. That is, the PCE Deflator using 1972 weights and the PCE Deflator using 1979 weights both record double-digit inflation during 1980, and give very similar measures of it—10.9 and 10.5 percent, respectively (preliminary 1980 annual data). Those are two price indexes that differ from each other only in the weights.

There are many differences between the PCE Deflators and the CPI, so comparisons of re-weighted PCE Deflators are only suggestive. However, the data I have seen on this issue suggest that the effect of weighting differences on the CPI measurement is probably considerably less than what it has been speculated to be in some parts of the press and academic circles.

But even if comparison of indexes with alternative weighting schemes indicates that use of a more current market basket would not have had as large an impact as some have suspected, it is important to recognize that this result need not continue in the future. The BLS for more than three decades has recognized the need for a continuing consumer expenditure survey. I am pleased that we were able to secure the resources required to conduct such a survey and can report to you that field collection of these data is now underway. In a few

Commissioner of Labor Statistics Janet L. Norwood discussed the Consumer Price Index before the Senate Appropriations Committee on January 29. This report is drawn from her testimony.

years, when this survey has been fully set in place, BLS will be able to monitor the degree to which consumption patterns are changing and to have at hand the data required for future revisions of the CPI weights.

The treatment of owner-occupied housing in the CPI. The method for measurement of owner-occupied housing in the index is a subject on which BLS has been working for many years. BLS began public discussion of the issue about 10 years ago. During the most recent revision of the CPI, BLS staff did a series of detailed analyses of the homeownership component and evaluated several alternative methods of measurement.

The basic problem in designing the owner-occupied housing component is to determine just what the index should measure. The housing component of the official CPI views a house both as an asset which can be resold and as a home to live in which permits the owner to consume housing services.

The present CPI homeownership component includes the month-to-month changes in prices of five expenditures of owning a home. The weights for three of these expenditures—property taxes, insurance, and maintenance and repairs—represent the average expenditures by all people living in their own homes during the CPI base period. Weights for two other expenditures—house prices and contracted mortgage interest costs—are based on the small group of families, roughly 6 percent of the total, who actually purchased a home in the base period. The prices used for houses and mortgage interest components of the index are current prices, and these components of the index rise and fall each month as house prices and mortgage interest rates change.

Because the weight for homeownership under this approach is so large (about 23 percent of the entire index) and because the index is so strongly affected by changes in interest rates, a good deal of criticism of this component has been heard. To encourage public discussion, BLS began publishing several experimental measures last year. Each reflects a different conceptual theory from the official index as well as alternative measurement approaches. All of the experimental indexes would result in a much smaller weight for the homeownership component.

The most widely discussed of these experimental alternatives is the "rental equivalence" (CPI-X1) index. President Carter recommended in his FY 1982 budget submission that Congress legislate the use of CPI-X1 for indexation of Federal Government programs.

CPI-X1 differs from the official CPI because X1 includes as the homeownership component only the cost of consuming the shelter services provided by a house. Unlike the official CPI, it excludes the investment aspects of homeownership. CPI-X1 is a rental equivalence measure, but since a true rental equivalence sample—one made up of housing units of the same types and in the same locations as owned units—is not currently available CPI-X1 uses the CPI rent component as the shelter measure. The BLS believes that an improved rental equivalence index is a worthwhile objective and if resources can be made available would like to do the testing required to determine the appropriate design of a rent sample which is more representative of the owner-occupied housing stock.

The CPI as an Aggregate Indexing Mechanism. The rate of inflation can vary across households, and the average may not represent the experience of the individual parts. In particular, these differences among households may be related to such characteristics as age and income level. We do not know the extent of this variation or the degree to which it is systematic. For this reason, it is possible that use of an aggregate index for adjusting payments could result in all households being equally compensated for changes in living costs, whereas some households actually gain while others lose.

Even if we assume that all households experience the same change in average price level, it is possible that their need for indexation will depend on what happens to their income. The CPI measures the change in total expenditure necessary to purchase a set of goods and services. To the extent that the percentage of income provided by indexed programs varies, the degree to which households are insured against inflation by indexation will also vary. In this case, the change in living standards as a result of inflation will depend on how other income sources vary with inflation. Thus, even in this very simplified case, living standards could change substantially despite escalation of benefits by an accurate index.

I have raised these last two issues because they relate directly to recent suggestions that special indexes might be designed to index payments to subgroups of the population, such as the elderly. These issues are potentially just as important in designing an effective indexation program as those technical issues, like the treatment of housing, which are important for all uses of the index. We do not know whether an index for a particular group of the population would produce results that are very different from the CPI for All Urban Consumers. A whole series of important issues would have to be clarified before any empirical testing could even be done. For example, policymakers would have to determine the exact definition of the group to be represented. And even then, it is not sufficient to construct a new index for a special group such as the elderly without considering the complex interrelationships among the design and accuracy of the index, the structure of the indexing mechanism and the ultimate objective of the indexation program. □

Indexing Federal programs: the CPI and other indexes

Conflicts between indexing Federal entitlement programs and other policy objectives can be ameliorated somewhat by technical changes such as adopting a different cost-of-living index and altering the indexing adjustment mechanism in some programs, at least during periods of increasing inflation. Nevertheless, substantial conflicts between indexing and other policy goals will continue to arise in periods of rapid inflation and (or) slow growth in productivity even after desirable technical adjustments have been made. The likely continuation of these conflicts in the future requires a more searching re-examination of the rationale for full indexing of real benefits.

Choice of an index

The objective of indexing entitlement programs is to ensure benefit increases commensurate with increases in the cost of living. The Consumer Price Index[1] is typically used for such purposes. However, the CPI has a number of shortcomings as a measure of the cost of living. Furthermore, as the data in table 1 indicate, the CPI has increased more rapidly in recent years than an alternative measure of consumers' cost of living, the fixed-weight, price index for personal consumption expenditures (PCE). While there is no presumption that the PCE price index is precisely "right," methodological problems with the treatment of housing in the CPI suggest that the PCE is on balance a better measure of the cost of living. Furthermore, the differential behavior of the two indexes in response to recent rising inflation calls into question the wisdom of using the CPI as a cost-of-living index.

The two indexes differ conceptually in a number of ways. For example, the PCE price index counts only currently produced goods while the CPI includes several important used items, such as used cars. More important is the difference in the treatment of housing; the CPI treats housing as a purchased good, while the PCE price index uses a rental equivalence approach. Despite these conceptual differences, the two indexes increased at roughly the same rate during the period of low inflation from 1960 to 1972. As inflation rates rose, the CPI began increasing more rapidly. From 1973 to 1976 the annual difference averaged 0.7 percentage points, and by 1979 had risen to over 2½ percentage points. The increase in the CPI has been about 10.5 percent greater than that of the PCE price index during the 1973 to 1980 period.

While these data are only suggestive, they do indicate that the CPI may be systematically biased relative to a "true" cost-of-living measure. Over a substantial period of time, this would lead to a significant difference in the level of indexed benefits. Using the CPI for indexing entitlement programs therefore raises serious issues of equity and the allocation of budgetary resources. Moreover, even if over the long run the CPI yields the correct answer "on average," it can distort the timing of expenditure flows and add to inflationary pressures precisely when this is least desirable from the standpoint of stabilization policy.

The construction of the CPI has been the subject of considerable scrutiny in recent years. Most attention has been devoted to the CPI's use of a fixed and somewhat out-of-date market basket, its treatment of housing and other durable goods, and its treatment of taxes.

Choice of a market basket

A true cost-of-living index would attempt to compare the cost to the consumer of attaining a given level of "satisfaction" in different periods, that is, under different sets of prices. Since satisfaction cannot be measured, it is necessary to approximate it with something that can be measured. In the CPI and other fixed-weight indexes, this is achieved by selecting a market basket of goods and seeing how much it costs to purchase the same basket of goods in subsequent months and years. However, this procedure tends to overstate increases in the cost of living and may do so significantly. This happens because consumers, by purchasing less of those goods that have become relatively more expensive and more of those that have become relatively cheaper, can and do achieve greater satisfaction than they would if they spent the same amount of money on the original basket of purchases.

To illustrate this point, imagine a consumer who initially spends $2 on 1 pound of beef and 1 pound of pork, both of which cost $1 dollar per pound. If the price of pork then doubles but the price of beef remains

Table 1. Percent changes[1] in the Consumer Price Index for All Urban Consumers and the fixed-weight Personal Consumption Expenditures Index, 1960–80

Period	CPI-U	PCE price index
1960–1972	2.9	2.6
1973–1976	8.2	7.5
1977	6.7	6.3
1978	8.9	8.1
1979	12.8	10.2
1980[2]	12.5	10.7

[1] Annual rates, fourth quarter to fourth quarter.
[2] Fourth quarter 1979 to third quarter 1980.

This report is drawn from the *Report on Indexing Federal Programs* submitted to Congress on January 15 by the Council of Economic Advisers and the Office of Management and Budget. The 53-page report is for sale ($3.75) by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

the same, the original basket of purchases would cost $3.00 rather than $2.00. A fixed-weight index like the CPI would register a 50 percent increase in the "cost of living." However, when this person consumes one pound of beef and one pound of pork, additional amounts of pork and beef are worth about the same to him. (We know this because in the original period he paid the same amount for the two meats.) Thus, although the consumer *could* spend his $3.00 on the original market basket, he could make himself even better off by purchasing, for example, ¼ pound less pork and ½ pound more beef. That would mean that $3.00 is a higher expenditure than would be necessary to achieve his original level of satisfaction. In other words, this fixed-weight price index would overstate the increase in the consumer's cost of living caused by the increase in the price of pork.

An alternative choice of a market basket is the common weighting procedure that uses the current period's expenditure weights to construct a price index. The well-known "implicit price deflators" of the national income accounts, which are published by the Commerce Department's Bureau of Economic Analysis, are examples of indexes that use this method of weighting. The PCE implicit price deflator prices the current period's consumption both at current market prices and at base-year prices. The ratio of actual consumption expenditures to the hypothetical cost of current purchases at base period prices is the implicit price deflator for that period. Because changes in the implicit price deflators from one period to the next are affected by changes in both the price and the composition of the market basket, they are less useful measures of price changes than are fixed-weight indexes.

As a measure of changes in the cost of living, the PCE implicit price deflator has a disadvantage that is the counterpart of that of fixed-weight indexes such as the CPI or the PCE fixed-weight index. Just as these fixed-weight indexes tend to overstate increases in the cost of living by taking no account of the gains in satisfaction possible through substitution, the implicit PCE deflator tends to understate cost-of-living increases by assuming that individuals give up no satisfaction as a result of changing consumption patterns through substitution.

An extension of the previous example should make this clear. Suppose that after the price of pork has doubled the consumer decides to purchase 2 pounds of beef and no pork. The cost of the current period's consumption ($2) is the same as it would have been at base period prices, so the implicit price deflator for this consumer would register no increase. But the consumer is almost certainly worse off than he was with the previous set of prices. He could have afforded 2 pounds of beef and no pork in the base period as well as in the second period, but he chose instead to buy a pound of each. This suggests that the first period's consumption pattern was preferred to that of the second period, rather than equal to it, as implied by the unchanged deflator.

Both a fixed-weight index with out-of-date weights and an implicit deflator have shortcomings. There is an alternative weighting procedure that is, in a sense, a compromise between the fixed-weight index and the implicit deflator. This procedure uses fixed weights to compare price levels between each two adjacent time periods, but the weights reflect the first period's consumption pattern in each case. Thus, between period one and period two the index would be constructed using the market basket for period one, between period two and period three the market basket for period two would be used, and so forth. Such an index, called a "chain-weighted index," has some attractive characteristics as a measure of the cost of living. Like the fixed-weight index, it constructs a fixed-weight comparison of price levels between each pair of adjacent time periods. However, the weights change between periods to reflect changing consumption patterns so that failure to consider substitution does not become a growing problem. Unlike the case with implicit price deflators, period-to-period changes in the index do not confound changes in price with changes in the market basket for adjacent time periods, though for longer time periods a similar problem occurs as the market basket is allowed to change. Because the chain-weighted index neither ignores substitution nor treats it as being costless, it is not possible to identify *a priori* any bias in the chain index as a measure of the cost of living.

The Bureau of Economic Analysis of the U.S. Department of Commerce calculates a chain-weighted price index for personal consumption expenditures parallel to its computation of the fixed-weight index and the implicit price deflator. As table 2 indicates, the chain-weighted index tends to show inflation higher than the implicit deflator and lower than the fixed-weight index.[2] Changes in the market basket consumers purchase are not likely to be a problem from month to month, but over a period of years the effects may be

Table 2. Percent changes[1] in National Income Accounts price measures for personal consumption expenditures, 1960–80

Period	Implicit price deflator	Chain-weighted price index	Fixed-weight price index
1960–1972	2.8	2.7	2.6
1973–1976	7.3	7.4	7.5
1977	5.9	6.2	6.3
1978	7.8	8.0	8.1
1979	9.5	9.8	10.2
1980[2]	10.2	10.4	10.7

[1] Annual rates, fourth quarter to fourth quarter.
[2] Fourth quarter 1979 to third quarter 1980.

substantial. This will especially be the case if the relative price of an important commodity, such as gasoline or heating oil, increases dramatically. Because the currently available fixed-weight indexes (both the fixed-weight PCE price index and the CPI) use a market basket based on data from the early 1970's—largely before the huge run up in oil prices—this issue is of some concern. The data in table 2 suggest that in the last 2 years a fixed-weight index may have overstated the increase in the cost of living by about 0.3 to 0.4 percentage points per year. While not dramatic, this is not inconsequential in terms of indexing entitlement programs.

There is no reason in principle why the CPI or some variant of the CPI could not be constructed as a chain-weighted index. But the CPI is a monthly index, and the cost of revising the relevant market basket each month would be exorbitant. A more feasible approach might be to construct the CPI as an annual chain index, using the fixed weights of the previous year's market basket for all months during each year.

A perhaps more straightforward alternative would be simply to update the market basket on a more frequent basis, although not yearly as in a chain index. Any such development must await the availability of data from the Continuing Survey of Consumer Expenditures. Prior versions of the CPI have relied on data from surveys of consumer expenditures about once per decade to determine the base year market basket. Data for the market basket currently used were gathered in a survey that took place during 1972–74. The Bureau of Labor Statistics has begun to collect data in a continuous survey that will allow more frequent and regular revisions of the market basket. Several years of data collection will be necessary before sufficient data have been collected to permit computation of revised expenditure weights, although revisions more frequent than once a decade will be possible soon thereafter.

Treatment of durables

Durable goods such as housing, automobiles, and washing machines are purchased in one time period but consumed over several periods. In principle, a cost-of-living index should measure the cost in each period of a fixed flow of services provided by these goods rather than the cost of purchasing the durable good. For durables that are rented or leased, such as rental housing or leased cars, measurement of the cost of these services can be made easily because the relevant prices are readily observable. But for durables that are owned by individuals and for which there are no market transactions, the measurement of the cost of consumption services is considerably more difficult. In the current version of the CPI this issue is largely sidestepped by counting the cost of *purchase* of the durable good in the market basket. The following section examines this approach to measuring the cost of owner-occupied housing and discusses alternative measures.

Housing in the CPI. The housing component is the most criticized aspect of the CPI and even the Bureau of Labor Statistics, the producer of the index, is on record as being dissatisfied with the existing treatment of housing. In fact, when the CPI was revised in 1977 BLS gave serious consideration to changing the treatment of housing.

Table 3 compares increases in homeownership costs in the CPI with increases in all other items. Over the past 20 years the homeownership component has increased substantially more rapidly than other components of the CPI. Since the end of 1959 the homeownership component has risen 286 percent, compared with a 167-percent rise for all other items and a 190-percent rise for the CPI as a whole.

Furthermore, because it is heavily influenced by changes in mortgage interest rates, the homeownership component has been far more volatile than other major components and therefore has been a major source of volatility in the CPI. The precipitous decline in mortgage interest rates that occurred in the middle of 1980 reduced inflation in the homeownership component of the CPI from a 25-percent annual rate in the first half of 1980 to 2 percent during the next four months. This resulted in a 6.4-percentage point reduction in the rate of inflation as measured by the CPI, although the corresponding reduction for items other than the homeownership component was only 0.7 points.

Of course, the data in table 3 alone do not show that the treatment of housing is flawed; in recent years energy prices have also been highly volatile and have increased more rapidly than the CPI as a whole. However, as discussed below, in the case of housing there are independent reasons to believe that the current treatment is inadequate and should be changed.

The homeownership component of the CPI consists of five subcomponents, which are listed in table 4 along with their relative importance in the index as a whole. Homeownership is obviously quite important in the CPI, accounting for nearly one-quarter of the index. The last three items in table 4 are not particularly controversial;

Table 3. Percent changes[1] in selected components of the Consumer Price Index for All Urban Consumers, 1959–80

Period	All items	Home-ownership	All other items
1959–1976	4.1	5.0	3.9
1977	6.8	9.2	6.1
1978	9.0	12.4	8.0
1979	13.3	19.8	11.3
Dec. 1979–June 1980	14.8	25.3	11.4
June 1980–Oct. 1980	8.4	2.0	10.7

[1] Annual rates, December to December unless otherwise noted.

Table 4. Relative importance of subcomponents of the homeownership component of the Consumer Price Index, December 1979

Subcomponent	All items CPI	Homeownership component
Homeownership	.249	1.000
Home purchase	.104	.417
Contracted mortgage interest cost	.087	.347
Maintenance and repairs	.036	.145
Property taxes	.017	.068
Property insurance	.006	.022

the problematic items are home purchase and mortgage interest costs, which account for three quarters of total homeownership costs.

Home purchase. As noted, the CPI treats durables as though they are "consumed" upon purchase. Hence, the cost of purchasing a home enters the CPI just as that of any other item. As noted above, a cost-of-living index should measure the cost of a fixed flow of "shelter services." Unfortunately, however, house prices are a poor measure of the cost of shelter because a house not only provides shelter but also, as an asset, yields a return like any other investment. Consequently, the movement of house prices reflects not only the cost of shelter but also the value of the investment. Just as the CPI excludes, for example, changes in the prices of common stock, changes in the value of a house should be distinguished from changes in the cost of shelter; only the latter, in principle, should be included in a measure of the cost of living. The relevance of this issue is suggested by the steady decline in rent-to-value ratios during recent years as residential rents have increased much less rapidly than house prices.

Apart from this conceptual issue, there are also problems of measurement in the home purchase component. First, the weight for home purchase is very large. This weight is based on the purchase price of homes bought in the base period less the sales price of homes sold. One reason for the large weight of housing in the index is that the base period (1968–1973) was a fairly robust one for housing, with strong housing construction. Furthermore, the house price series used in the CPI is rather weak. It is based on a sample of FHA-insured housing that, as BLS states, "constitutes a small and unrepresentative segment of the market." However, because the criticism of the treatment of homeownership would apply regardless of the quality of the house price series, the problems with the FHA series will not be addressed here.

Mortgage interest costs. While the treatment of home prices in the CPI is questionable, that of mortgage interest costs is even more troublesome. The treatment results in an unreasonably large weight for mortgage interest costs, which in turn magnifies the volatility of the homeownership component.

In essence, the CPI assumes that part of the mortgage is purchased along with the house. Those who obtain mortgages are assumed, in effect, to make a "purchase" equal to the sum of all interest payments that would be due over the first half of the life of the mortgage, which would include more than half of the interest payments. This approach mixes investment and consumption characteristics of housing in a way that has little logical appeal. At the very least, this treatment of mortgages seems to involve substantial overcounting. It should be noted that this treatment is not accorded all durable goods; for an appliance purchased on credit, no attention is paid to the contracted interest cost.

The net effect of all this is that the CPI treatment substantially overstates the importance of homeownership. Homeownership currently accounts for about one-quarter of the CPI, nearly five times the importance of the residential rent component. This alone suggests a problem, because only about two-thirds of dwelling units are owner-occupied. Further evidence is provided by the fact that, in the national income accounts, homeownership is only about 2½ times as important as rental housing, far below the factor of 5 in the CPI. In view of the marked volatility of homeownership, its large weight in the CPI has unfortunate consequences.

Alternative treatments of housing. The problems with the present treatment of housing in the CPI have been recognized since the Stigler Commission Report on Price Statistics in 1961. Thus, it is hardly surprising that BLS has sought alternative measures. Two leading alternatives—user cost and rental equivalence—have emerged from the BLS analysis. Both these alternatives attempt to measure what a homeowner would have to pay to acquire the shelter provided by the home he owns.

The *user cost* approach builds up the cost of shelter services from its components. In effect, homeowners must "pay" mortgage interest on the funds they have borrowed, implicit interest on the original equity in the house (an opportunity cost since these funds could have been invested elsewhere), property taxes and insurance, and maintenance and repairs. To obtain an indirect measure of the shelter cost one would subtract from these expenditures two offsets: capital gains (or losses), net of depreciation, and savings on personal income taxes due to the favorable tax treatment of owner-occupied housing.

Besides the issue of taxes, there are two serious problems in the construction of a user cost measure of homeownership costs. First, it is not clear what interest rate is appropriate for the calculation of the interest forgone on home equity. The second difficulty concerns the volatility of available measures of capital gains or

losses. This makes the user cost measure of the homeownership component quite volatile, at least in the experimental measures constructed by BLS. Thus, from a practical point of view, the user cost approach does not appear to lead to a useful alternative to the CPI.

There is, however, a conceptually related approach, *rental equivalence,* that circumvents the most glaring operational difficulties with user cost. The rental equivalence approach uses actual market data on rental transactions to estimate the implicit rent on owner-occupied houses. Rental equivalence assumes that the implicit "price" of the shelter services from an owned home can be approximated by actual rents paid for a similar house that is rented. BLS now publishes an experimental CPI measure (X-1) based on this approach.

The rental equivalence approach is not without its own practical shortcomings. To provide a good proxy for the implicit rental cost of owned homes it is desirable to have a sample of rental housing that reflects, as closely as possible, the characteristics of owner-occupied housing with respect to, for example, size of house and the number and types of rooms. Critics of the rental equivalence approach suggest that this matching may be difficult to achieve, not so much because of house sizes but because of more intangible characteristics such as neighborhood quality. A related point is that market rents may reflect costs that are irrelevant for owner-occupied housing, such as a risk premium to compensate landlords for possible mistreatment of property or the average costs of turnover.

Although these are valid points in principle, they do not invalidate the rental equivalence approach. Even if many intangible characteristics remain unquantifiable, this need not bias a rental index. Indeed, many of the objections pertain to differences in rental *levels* between different types of housing rather than rates of increase. Furthermore, even if a fully representative rent sample is not available, there are statistical techniques that may be used to correct for the fact that owner-occupied houses differ from rented houses.

Table 5 presents the movement of four homeownership indexes: the current homeownership component in the CPI, two experimental user cost indexes (X-2 and X-3), and an experimental rental equivalence measure (X-1). In table 5 the volatility of X-2 and X-3 is readily apparent; they are even more volatile than the current homeownership component. X-1, the rental equivalence measure, displays substantially less volatility than either the user cost or the current treatment of housing costs.

Table 6 presents measures of overall consumer price inflation obtained by the use of the X-1 homeownership component in comparison with the conventional CPI and the PCE fixed-weight deflator. Table 6 shows the CPI:X-1 has increased since 1966 at a substantially slower rate than the conventional CPI. Second, the CPI:X-1 and the PCE fixed-weight deflator give quite similar results. (Given that the deflator uses the BLS rent index, this similarity is perhaps not surprising.)

Table 5. Percent changes[1] in alternative measurements of homeownership

Year	CPI-U component	Rental equivalence (X-1)	User cost (X-2)	User cost (X-3)
1968	7.6	2.8	11.0	8.0
1969	10.2	3.8	7.1	3.5
1970	10.2	4.5	4.2	1.7
1971	2.7	3.8	−12.1	−8.9
1972	4.1	3.5	2.4	3.2
1973	7.7	4.9	23.0	18.9
1974	13.3	5.4	16.9	12.9
1975	7.9	5.2	2.8	3.4
1976	3.8	5.5	−1.1	1.9
1977	9.2	6.5	2.5	0.4
1978	12.4	7.3	5.7	−1.1
1979	19.8	7.9	28.2	20.5

[1] 12 months ended in December.

While the CPI based on X-1 is a considerable improvement over the current treatment of homeownership costs, further refinements of the rental equivalence approach could be undertaken. As now constructed, the experimental X-1 index is based on the CPI rent index that measures actual rental costs for a typical rental dwelling. That is, no correction is made for differences in the characteristics of rented and owned dwellings—a correction that is desirable in principle. The BLS staff has done some research on this topic suggesting that such an approach should eventually prove practicable. Our review of this research suggests that the approach used in X-1 currently provides a representative cost-of-living index. Hence, even as presently constituted, the CPI based upon X-1 offers a serviceable measure of the cost of living.

Alternatives

At present, there are three main options for indexing entitlement programs: the current CPI; one of the Personal Consumption Expenditure price indexes from the

Table 6. Percent changes[1] in Consumer Price Index for All Urban Consumers, the same index with homeownership component based upon rental equivalence (X-1), and the Personal Consumption Expenditures fixed-weight index, 1960–80

[In percent]

Period	CPI-U	CPI-U based on X-1	PCE fixed-weight price index
1960–72	2.9	2.6	2.6
1973–76	8.2	7.7	7.5
1977	6.7	6.4	6.3
1978	8.9	7.8	8.1
1979	12.8	10.7	10.2
1980[2]	12.5	10.9	10.7

[1] Annual rates, fourth quarter to fourth quarter.
[2] Fourth quarter 1979 to third quarter 1980.

National Income Accounts; or a modified version of the CPI which incorporates one of the alternative measures of shelter costs.

The advantages of continuing to use the current CPI is that it is very well known, has achieved a high level of public acceptance, and is extensively used for private contracts. However, the CPI has very serious shortcomings as a measure of the cost of living.

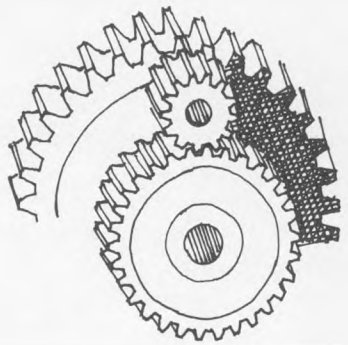
It would be possible to adopt one of the Personal Consumption Expenditure price indexes for indexing entitlement programs. It might be most acceptable to use the fixed-weight or chain-weighted price index because the Implicit Price Deflator tends to understate increases in the cost of living. However, the consumption expenditure indexes have several important drawbacks. First, they were not designed to measure the cost of living or even consumer prices, but rather to measure the cost of current production for consumption. In addition, the weights for the fixed-weight index are just as outdated as the CPI's weights.

The final alternative is to use a cost-of-living index obtained by modifying the CPI to change the inappropriate treatment of housing. This would eliminate the major problem with the current CPI—its treatment of housing—and would provide a sounder basis for indexing entitlement programs. Over the longer run, further improvements could be made. For example, when the continuing Survey of Consumer Expenditures becomes available, it would be possible to update the market basket of this cost-of-living index on a more timely basis. In short, the CPI based on X-1 offers an index with significant immediate advantages over the current CPI as well as a framework for incorporating further improvements in measuring the cost of living. □

FOOTNOTES

[1] In this report, CPI refers to the Consumer Price Index for All Urban Consumers (CPI-U), which covers approximately 80 percent of urban consumers. The Bureau of Labor Statistics also publishes the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). It covers about 40 percent of urban consumers.

[2] Because 1972 is the base year used, the fixed-weight index rises less rapidly than the Implicit Price Deflator prior to 1972 and more rapidly after 1972. In all periods, the increase in the chain-weighted index is between those of the fixed-weight index and the Implicit Price Deflator.



Productivity Reports

Long nonfarm productivity slide ends during the third quarter

LAWRENCE J. FULCO

Productivity advanced in the private business and nonfarm business sectors in the third quarter of 1980. These gains were immediately reflected in slower growth of unit labor costs, which are important cost items to most employers. Manufacturing productivity continued to slip in the third quarter, although the declines in output and hours were much smaller than those during the second quarter.

In the private business sector, productivity increased 1.5 percent in the third quarter. The third-quarter increase reflected a 1.1-percent increase in output and a 0.4-percent decline in hours of all persons. One quarter earlier, productivity declined 1.9 percent as output fell at a 11.5-percent annual rate, equaling the most severe single-quarter output decline in the series, which occurred in the first quarter of 1975.

In the nonfarm business sector, productivity increased 3.7 percent in the third quarter, compared with a 3.0-percent decline one quarter earlier. This was the largest gain in more than 3 years. In this sector, the period of no productivity growth began in the second quarter of 1978[1].

In the nonfinancial corporate sector, productivity advanced 6.8 percent in the third quarter, as output increased at a 3.4-percent annual rate, while employee-hours declined 3.2 percent. This substantial productivity increase was the largest in 5 years.

In manufacturing, productivity declined 0.7 percent in the third quarter, reflecting the drop in durable goods. Nondurable productivity increased in the third quarter. In the sector as a whole, output dropped 7.3 percent and hours of all persons declined 6.6 percent. This was the fourth consecutive quarter of falling output and hours in manufacturing.

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The following tabulation shows the third-quarter annualized rates of change in productivity, output, and hours paid for by major sector.[2]

Sector	*Productivity*	*Output*	*Hours*
Private business	1.5	1.1	−0.4
Nonfarm business	3.7	2.9	−0.9
Nonfinancial corporations	6.8	3.4	−3.2
Manufacturing	−0.7	−7.3	−6.6
Durables	−3.4	−10.9	−7.8
Nondurables	2.9	−1.9	−4.7

Compensation, labor cost, and profits

Hourly compensation rose 9.7 percent in the private business sector in the third quarter of 1980, compared with a 12.2-percent increase during the second quarter. Compensation costs include wages and salaries as well as fringe benefits—paid leave and health plans, and employer-paid taxes—unemployment insurance, and social security.

Because productivity rose somewhat in the third quarter, the increase in unit labor cost was smaller than the gain in hourly compensation in the private business sector. The 8.1-percent gain in unit labor cost was substantially smaller than the 14.4-percent rise which occurred in the second quarter when productivity declined.

During the 8-quarter period of no productivity growth which was interrupted by the third quarter gains in the nonfarm business sector, unit labor cost increased 22.9 percent. The increase reflected a 20.4-percent gain in hourly compensation coupled with a 2.0-percent decline in output per hour over the span.

Real hourly compensation—compensation per hour adjusted by the seasonally-adjusted Consumer Price Index for all Urban Consumers (CPI-U)—increased 2.4 percent in the private business sector in the third quarter, the first increase in this series since the first quarter of 1979.

In the nonfarm business sector, hourly compensation increased 9.2 percent in the third quarter, and unit labor cost rose 5.3 percent. One quarter earlier, the gains were 11.2 percent for hourly compensation and 14.6 percent for unit labor cost. Real hourly compensation increased 2.0 percent, after showing no growth during preceding 9 quarters.

Table 1. Components of the implicit price deflator for nonfinancial corporations, 1967–79

[Indexes, 1977=100]

Year	Implicit Price Deflator	Unit Labor Cost	Unit Nonlabor Payments	Unit Nonlabor Cost	Unit Profit
1967	59.2	58.2	61.0	51.9	80.2
1968	61.1	60.4	62.6	54.3	80.0
1969	63.7	64.2	62.8	59.0	70.7
1970	66.5	68.3	63.1	66.7	55.6
1971	68.8	69.4	67.8	70.2	62.7
1972	70.7	71.3	69.6	70.5	67.8
1973	73.4	74.9	70.7	71.9	68.0
1974	81.8	85.1	75.7	84.7	56.8
1975	90.7	90.6	90.9	96.8	78.4
1976	95.0	95.0	95.0	97.0	91.0
1977	100.0	100.0	100.0	100.0	100.0
1978	106.4	107.8	103.8	104.1	103.0
1979	114.8	118.2	108.3	112.7	99.0

Hourly compensation in manufacturing increased 12.7 percent in the third quarter (5.2 percent after adjusting for the rise in the CPI-U) and unit labor cost went up 13.6 percent. One quarter earlier, these costs rose 20.5 percent.

Hourly compensation outlays in nonfinancial corporation increased 10.3 percent in the third quarter, and unit labor cost rose 3.2 percent (annual rates). One quarter earlier, hourly compensation increased 12.0 percent and unit labor cost rose 12.6 percent. Real hourly compensation increased 3.0 percent in the third quarter.

Profits of nonfinancial corporations increased at a 34.7-percent annual rate in the third quarter, and profit per unit of output rose 30.3 percent. Both profit series had shown declines in each quarter of 1979. Unit profits are quite volatile, but are only about 12 percent as large as unit labor cost. Since 1967, profits have grown 76 percent (unit profits went up 11 percent) while compensation outlays increased more than three and one-half times and unit labor cost increased 123 percent.

The implicit price deflator is influenced by changes in unit labor cost, unit nonlabor payments, and unit profits. Table 1 shows how these measures have interacted to determine the change in prices in the nonfinancial corporations since 1967. During the third quarter of 1980, the deflator for the nonfinancial corporate sector advanced 7.9 percent, compared with a 10.5-percent rise during the second quarter.

Table 2. Trends in hours in the private business sector, third quarter 1980

Worker category	Percent change in hours	Category share of hours	Contribution to trend
Total	−0.41	1.000	−0.41
Manufacturing	−7.24	0.275	−1.99
Durable	−9.07	0.167	−1.51
Nondurable	−4.37	0.108	−0.47
Transportation, communication, and public utilities	−2.33	0.070	−0.16
Transportation	−7.01	0.040	−0.28
Communications	1.84	0.018	0.03
Public utilities	7.60	0.012	0.09
Finance, insurance, and real estate	2.56	0.064	0.16
Services	4.59	0.127	0.58
Mining	−7.83	0.015	−0.12
Construction	−4.64	0.056	−0.26
Wholesale trade	−1.70	0.069	−0.12
Retail trade	1.60	0.157	0.25
Farm employees	−5.42	0.014	−0.07
Farm unpaid family workers	37.49	0.004	0.14
Farm proprietors	16.50	0.024	0.39
Nonfarm proprietors	9.36	0.098	0.91
Nonfarm unpaid family workers	6.74	0.005	0.03
Government enterprises	−0.30	0.022	−0.01
Sum of interaction terms[1]	.....	.....	−0.17

[1] A measure of how much of the total private business change results from the joint effect of individual worker category movements.

Employment and hours

Hours paid for of all persons in the private business sector declined 0.4 percent in the third quarter, reflecting a 0.3-percent decline in employment and a 0.1-percent reduction in the length of the average workweek. This was the second consecutive drop in employment, but the second-quarter drop was much larger—5.4 percent. As can be seen in table 2, the largest contribution to the decline in hours occurred in the manufacturing sector, which accounts for 28 percent of the private business sector.

In the nonfarm business sector, hours declined 0.9 percent in the third quarter, compared with a 9.4-percent decline during the second quarter. Employment was down 0.4 percent, and average weekly hours off 0.5 percent. Nonfarm business employment stands at 76.8 million and 2.8 million others are engaged in the farm sector.

In manufacturing, hours declined 6.6 percent in the third quarter, compared with a 17.6-percent drop during the second quarter. Employment was off 6.6 percent —to about 20.3 million—and average weekly hours increased 0.1 percent.

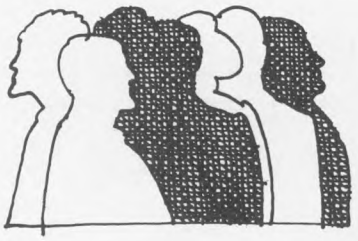
About 53.9 million employees work for nonfinancial corporations. During the third quarter of 1980, hours paid for of these employees declined at a 3.2-percent annual rate, reflecting a 2.7-percent decline in employment and a 0.6-percent drop in average weekly hours. □

FOOTNOTES

[1] The longest period of declining productivity in the private business sector began in the second quarter of 1973. Productivity growth resumed in the first quarter of 1975, 7 quarters later.

[2] More complete information may be found in tables 31–34 of the Current Labor Statistics section.

Special Labor Force Reports—Summaries



Absences from work among full-time employees

DANIEL E. TAYLOR

American workers with full-time wage and salary jobs lost about 95 million hours a week in May 1979 as a result of illnesses, injuries, and miscellaneous personal reasons. About one employee in 15 reported at least one absence during the week; the total hours lost represented about 3.4 percent of the hours usually worked.

In recent years, the overall level of absence has shown no trend. (See table 1.) The percent of time lost (inactivity rate) fluctuated narrowly between 3.3 and 3.5 percent from 1973 to 1979, while the percent of workers absent (incidence rate) moved between 6.1 and 6.7 percent.[1] Both measures registered their lowest levels during the recession of 1974–75.

The data series reported here are based on information collected once a year in May from the Current Population Survey (CPS), a national sample survey consisting of 56,000 households in 1979.[2] Absences are classified into two categories: those resulting from workers' illnesses or injuries and those resulting from various personal reasons, including the sickness or death of family members, civic or legal obligations (such as jury duty and military reserve service), and transportation problems. Absences resulting from vacations, holidays, industrial disputes, or weather conditions are excluded. The universe consists of nonfarm wage and salary workers who hold one job and usually work full time (35 hours or more per week).[3] Absence rates are shown for men and women, by marital status and by race, as well as by occupation, industry, and union coverage.

Industry and occupation

Time lost from work was a substantially higher proportion of usual worktime in the goods-producing sector than in the service-producing sector (3.9 versus 3.2 percent of the usual hours worked in May 1979). This was largely because of a relatively high rate of absence in manufacturing, which makes up more than three-fourths of the goods-producing sector. (See table 2.)

Absences were even higher in mining, but this had little effect on rates for the entire goods-producing sector, as the number of mining workers is relatively small. The proportion of time lost in the construction industry was no higher than the average for all industries. Within the service-producing sector, the proportion of time lost differed widely by industry.

Absences of factory operatives resulting from illnesses and injuries (shown in table 3) were a major factor in the relatively high proportion of time lost in manufacturing. Similarly, high rates for transportation equipment operatives and low rates for sales workers affected rates in transportation and trade industries in which these workers represented an important segment of the workforce.[4]

Personal characteristics

Women lost 4.3 percent of their usual weekly hours in May 1979; men lost 3.0 percent. The rates of incidence were 8.6 for women and 5.5 percent for men. Absence rates by sex vary with age and family status. The male-female difference in inactivity rates, for example, is higher for persons age 25 to 44 years than for those in their twenties, probably, in part, because family responsibilities increase absences for women, but not for men. Rates tended to be higher for older workers of both sexes, reflecting an increase in health-related problems.

Time lost by blacks tended to be higher than for whites (5.2 percent versus 3.2 percent).[5] Although numerous factors are involved, the differences are attributable, in part, to the greater concentration of blacks in occupations which are characterized by high levels of absence. Seven of 10 white workers, compared with 5 of 10 black workers, were in occupations with absence rates below the average. The following tabulation shows the proportion of time lost by race, sex, and marital status in May 1979.

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Table 1. Rate of absence for nonfarm wage and salary workers who usually work full time, by reason, May 1973–79

[Numbers in thousands]

Year	Number of workers		Hours		Incidence rate (Percent of workers absent)			Inactivity rate (Percent of time lost)		
	Employed	Absent	Usually worked	Lost	Total	Illness and injury	Miscellaneous reasons	Total	Illness and injury	Miscellaneous reasons
1973	55,283	3,614	2,344,970	81,549	6.5	4.1	2.4	3.5	2.4	1.1
1974	56,248	3,499	2,382,300	79,706	6.2	3.7	2.5	3.3	2.2	1.1
1975	54,700	3,332	2,303,410	78,873	6.1	3.7	2.4	3.4	2.3	1.1
1976	56,414	3,630	2,374,910	82,222	6.4	4.0	2.5	3.5	2.3	1.1
1977	58,422	3,802	2,473,740	87,487	6.5	3.9	2.6	3.5	2.3	1.2
1978	60,153	3,966	2,549,220	89,888	6.6	4.1	2.5	3.5	2.3	1.2
1979	64,810	4,336	2,745,060	94,641	6.7	3.9	2.8	3.4	2.2	1.2

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

Table 2. Inactivity rate (percent of time lost) for nonfarm wage and salary workers who usually work full time, by selected industries, May 1979 and average May 1977–79

[Numbers in thousands]

Industry	Number of workers May 1979	Total		Illness and injury		Miscellaneous reasons	
		1979	Average 1977–79	1979	Average 1977–79	1979	Average 1977–79
All industries[1]	64,810	3.4	3.5	2.2	2.3	1.2	1.2
Goods-producing industries[1]	24,364	3.9	4.0	2.7	2.8	1.2	1.2
Mining	757	6.7	5.7	2.1	1.9	4.5	3.8
Construction	4,230	3.2	3.1	2.1	2.0	1.1	1.1
Manufacturing	19,073	3.9	4.1	2.8	3.0	1.1	1.1
Durable goods[1]	11,789	3.8	4.2	2.9	3.1	1.0	1.1
Metal manufacturing	2,395	4.3	4.4	3.3	3.4	1.0	1.0
Machines, except electrical	2,338	3.2	3.8	2.3	2.8	.9	1.0
Transportation equipment	2,148	5.5	5.0	4.3	3.8	1.2	1.3
Nondurable goods[1]	7,284	4.1	4.0	2.7	2.9	1.4	1.1
Food	1,475	3.8	3.7	2.3	2.5	1.5	1.2
Apparel	1,161	6.1	5.4	4.4	3.9	1.7	1.5
Printing	1,032	2.8	2.7	1.9	2.0	.9	.7
Chemicals	1,079	4.2	3.7	2.7	2.6	1.5	1.1
Service-producing industries[1]	40,447	3.2	3.2	2.0	2.0	1.2	1.2
Transportation and public utilities	4,996	4.0	4.3	2.3	2.6	1.7	1.6
Transportation	2,658	5.5	5.3	2.9	3.1	2.5	2.2
Public utilities	2,339	2.1	3.0	1.4	2.1	.7	.9
Trade	10,951	2.5	2.6	1.7	1.8	.8	.9
Wholesale	3,028	2.4	2.3	1.8	1.6	.6	.7
Retail	7,923	2.5	2.8	1.7	1.8	.8	1.0
Eating	1,685	3.6	3.7	2.1	2.3	1.5	1.4
Other	6,238	2.3	2.6	1.6	1.7	.6	.9
Finance, insurance, and real estate[1]	4,057	2.5	2.7	1.4	1.4	1.1	1.3
Banking	1,771	2.5	2.3	1.4	1.4	1.1	.9
Insurance	1,394	2.8	3.2	1.7	1.7	1.1	1.5
Services[1]	16,111	3.3	3.3	2.0	2.0	1.3	1.3
Business	1,320	2.3	2.9	1.4	1.7	1.0	1.2
Personal	1,398	3.4	3.3	1.9	1.9	1.5	1.5
Professional[1]	12,240	3.4	3.3	2.1	2.1	1.3	1.3
Medical	4,499	4.3	4.2	2.6	2.8	1.7	1.4
Educational	5,243	3.1	2.9	1.8	1.7	1.3	1.2
Public administration	4,232	4.1	3.5	2.4	2.3	1.7	1.2
Federal	2,000	4.4	3.6	2.4	2.3	1.9	1.3
Postal	572	4.0	4.3	3.1	3.6	.9	.8
Other Federal	1,428	4.5	3.2	2.2	1.8	2.3	1.5
State	751	4.8	3.6	2.8	2.4	1.9	1.2
Local	1,481	3.4	3.3	2.1	2.2	1.3	1.0

[1]Total includes industries not shown separately.

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

	Total	*Married, spouse present*	*Never married*
Total:			
Men	3.0	3.0	3.0
Women	4.3	4.5	3.4
White:			
Men	2.8	2.9	2.8
Women	4.0	4.3	3.0
Black:			
Men	4.6	4.3	5.0
Women	6.0	6.3	6.3

As noted earlier, white women who were married had higher absence rates than never-married women. In contrast, rates among black women were the same for married and never-married women. This, in part, may be because single black women are more likely than their white counterparts to have child-care responsibilities.[6]

Union status

Workers represented by unions generally reported higher absences resulting from illnesses and injuries (but not for miscellaneous personal reasons) than other

Table 3. Inactivity rate (percent of time lost) for nonfarm wage and salary workers who usually work full time, by selected occupations, May 1979 and average May 1977–79

[Numbers in thousands]

Occupation	Number of workers May 1979	Total		Illness and injury		Miscellaneous reasons	
		1979	Average 1977–79	1979	Average 1977–79	1979	Average 1977–79
All occupations[1]	64,810	3.4	3.5	2.2	2.3	1.2	1.2
Professional and technical[1]	10,886	2.5	2.5	1.3	1.4	1.2	1.1
Engineers	1,323	2.3	2.5	.7	1.3	1.6	1.2
Health workers	1,646	2.9	3.5	1.7	2.2	1.2	1.2
Teachers	2,767	3.1	2.7	1.5	1.3	1.6	1.5
Managers and administrators	7,515	1.9	2.0	1.0	1.2	.9	.8
Sales workers[1]	3,182	2.3	2.7	1.4	1.7	.9	1.0
Wholesale	703	.8	1.2	.5	.9	.4	.4
Retail	1,280	2.7	3.2	2.2	2.3	.6	1.0
Clerical[1]	12,124	3.3	3.3	2.2	2.1	1.1	1.2
Bookkeeper	1,100	2.5	2.5	1.0	1.2	1.5	1.2
Secretary	2,886	3.0	2.9	2.1	1.9	.9	1.1
Craft and kindred workers[1]	10,033	3.0	3.3	2.1	2.3	.9	1.0
Construction	2,711	3.3	3.4	2.4	2.3	1.0	1.2
Mechanics	2,755	2.7	3.1	2.0	2.2	.7	.9
Operatives, except transport[1]	9,003	5.4	5.7	3.7	4.0	1.8	1.7
Assemblers	1,175	5.0	5.7	3.9	4.2	1.1	1.5
Welders	660	4.3	4.7	3.7	3.5	.7	1.1
Transport equipment operatives[1]	2,697	3.9	4.2	2.3	2.9	1.6	1.3
Truck drivers	1,595	3.8	4.1	2.4	2.8	1.4	1.3
Nonfarm laborers	3,103	4.9	4.2	3.5	2.9	1.4	1.3
Service workers[1]	6,266	5.0	4.5	3.3	3.0	1.7	1.5
Cleaning	1,524	4.9	4.8	3.6	3.5	1.3	1.4
Food	1,717	4.8	4.4	3.0	2.8	1.8	1.6
Protective	1,023	3.8	3.4	2.8	2.6	1.0	.5

[1]Total includes occupations not shown separately.

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

workers. However, in some industry groups, nonunion members lost about the same or larger proportions of time because of illnesses and injuries than workers represented by unions for May 1979, as shown in the following tabulation:

	Union	*Nonunion*
Total (in percent)	3.0	1.8
Manufacturing	3.9	2.1
Trade	3.1	1.5
Finance, insurance, real estate	.7	1.4
Educational services	1.7	2.0
Medical services	3.8	2.2
Federal public administration	3.2	1.8

The generally higher rate of absence for workers represented by a union may result in part from differences in occupational mix as well as a higher proportion of the union group being eligible for paid sick leave. □

FOOTNOTES

[1] The inactivity rate is defined as

$$\frac{\text{Number of hours absent}}{\text{Number of hours usually worked}} \times 100.$$

For example, the overall inactivity rate in May 1979 was calculated as

$$\frac{94{,}641{,}000 \text{ hours}}{2{,}745{,}060{,}000 \text{ hours}} \times 100 = 3.4 \text{ percent.}$$

The incidence rate is defined as

$$\frac{\text{Number of workers absent}}{\text{Total employed}} \times 100.$$

For example, the overall incidence rate in May 1979 was calculated as

$$\frac{4{,}336{,}000 \text{ absent workers}}{64{,}810{,}000 \text{ workers employed}} \times 100 = 6.7 \text{ percent.}$$

[2] The CPS is conducted for the Bureau of Labor Statistics by the Bureau of the Census. Data derived from the survey underestimate absences of workers on full-time schedules because information on absence is available only for those who were at work fewer than 35 hours. No information is available for workers on part-time schedules.

[3] The universe in the year ended May 1979 grew from 60.2 million to 64.8 million or nearly 8 percent. This was substantially greater than the increase for all wage and salary workers on full-time schedules, and resulted from a repositioning of the question on usual hours that reduced the nonresponse rate and from the allocation of certain remaining nonresponses. The larger universe probably had a minimal effect on rates of absence.

[4] For a description of some of the environmental and personal factors influencing absence and some company programs designed to reduce absence from work, see *Reducing Worker Absenteeism,* proceedings of a University of Michigan Workshop sponsored by the Graduate School of Business Administration and the Industrial Development Division, Institute of Science and Technology, The University of Michigan, 1979.

[5] Black workers lose more time and are absent more frequently than white workers, particularly for illnesses and injuries. In May of 1979, the only year for which absence data are available by race, the incidence rate for blacks was 9.6 percent versus 6.3 percent for whites (for illnesses and injuries the figures were 6.0 for blacks and 3.6 percent for whites). These data seem to contradict other findings that nonwhite workers are absent less frequently than white workers. See Steven G. Allen, *Absenteeism and the Labor Market,* prepared under a grant from the Employment and Training Administration, U.S. Department of Labor, p. 168.

[6] Unpublished Bureau of Labor Statistics data on the marital and family status of workers, March 1980.

Major Agreements Expiring Next Month

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

Employer and location	Industry	Union[1]	Number of workers
Affiliated Hospitals of San Francisco (California)	Health services	Service Employees	2,750
Associated General Contractors of America, Inc.:			
Baton Rouge Chapter (Louisiana)	Construction	Laborers	2,500
Colorado Building Chapter	Construction	Operating Engineers	3,850
Lake Charles Chapter (Louisiana)	Construction	Laborers	1,100
Massachusetts Chapter, 2 Agreements	Construction	Operating Engineers and Laborers	7,000
Minnesota Chapter, 8 Agreements	Construction	Operating Engineers; Bricklayers; Plasterers and Cement Masons; Carpenters; Laborers; and Iron Workers	30,200
American Thread Co. (Willimantic, Conn.)	Textiles	Textile Workers Union	1,100
Associated Contractors of New Jersey and 1 other (New Jersey)	Construction	Carpenters	1,700
Bergen-Passaic Building Contractors Association (New Jersey)	Construction	Carpenters	1,200
Boise Cascade Corp. (International Falls, Minn.)	Paper	Woodworkers	1,100
Buckeye International, Inc., Buckeye Steel Casting Co. Division (Columbus, Ohio)	Primary metals	Steelworkers	1,600
Builders Exchange of Rochester (New York)	Construction	Laborers	1,800
Carrier Corp., BDP Co. Division (Indianapolis, Ind.)	Construction	Steelworkers	1,000
Colorado Building Construction, Independent Employers (Colorado)[2]	Construction	Carpenters	1,600
Construction Contractors Council, Inc., 4 Agreements (Maryland, D.C., and Virginia)	Construction	Laborers	10,500
Construction Industries of Massachusetts	Construction	Operating Engineers	1,000
Contractors Association of Eastern Pennsylvania, 4 Agreements	Construction	Plasterers and Cement Masons; Laborers; Carpenters and Teamsters (Ind.)	6,400
Contractors of Eastern Pennsylvania and Delaware[2]	Construction	Operating Engineers	6,600
Danly Machine Corp. (Cicero, Ill.)	Machinery	Steelworkers	1,400
Day & Zimmerman, Inc., Lone Star Division (Texarkana, Tex.)	Ordnance	Chemical Workers	1,050
E. I. du Pont de Nemours and Co., Textile Fibers Department (Waynesboro, Va.)	Chemicals	United Workers, Inc. (Ind.)	1,500
Fedders Corp., Norge Co. Division (Herrin, Ill.)	Electrical products	Machinists	1,200
Food Fair Stores, Inc. of Miami (Florida)	Retail trade	Food and Commercial Workers	1,500
Foodtown Supermarkets (New York and New Jersey)	Retail trade	Food and Commercial Workers	3,000
Foundation-Marine Contractors Association of New England, Inc. (Interstate)	Construction	Operating Engineers	1,000
General Building Contractors Association (Philadelphia, Pa.)	Construction	Laborers	8,000
General Dynamics, Convair Division (California and Florida)	Ordnance	Machinists	3,500
General Portland, Inc. (Interstate)	Stone, clay, and glass products	Cement Workers	1,000
General Public Utilities Corp., Metropolitan Edison Co. (Pennsylvania)	Utilities	Electrical Workers (IBEW)	1,600
Grand Union Co., Western Division (New Jersey)	Retail trade	Food and Commercial Workers	1,850
Graphic Arts Association (District of Columbia)	Printing and publishing	Graphic Arts	1,800
Ideal Basic Industries, Inc. (Interstate)	Stone, clay, and glass products	Cement Workers	1,750
Industrial Contractors Association of Baton Rouge and Vicinity, Inc. (Louisiana)	Construction	Plumbers	5,000
Jeffboat, Inc. (Jeffersonville, Ind.)	Transportation equipment	Teamsters (Ind.)	1,250
Ladies Handbags & Leather Novelties (New York, N.Y.)[2]	Leather	Leather, Plastic and Novelty Workers	3,000
Lumber & Mill Employers Association (California)	Lumber	Carpenters	3,000
Mechanical Contractors Association of Central Pennsylvania	Construction	Plumbers	1,000
Mechanical Contractors Association of Eastern Pennsylvania, 2 Agreements	Construction	Plumbers	4,200

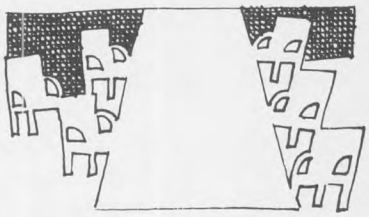
See footnotes at end of table.

Continued—Major Agreements Expiring Next Month

Employer and location	Industry	Union[1]	Number of workers
Merck & Co., Inc., Local Supplemental Agreement (New Jersey and New York)	Chemicals	Atomic Workers	3,250
Monsanto Co., John F. Queeny Plant (St. Louis, Mo.)	Chemicals	Chemical Workers	1,000
National Distillers & Chemical Corp. (Interstate)	Food products	Allied Workers	1,000
National Electrical Contractors Association, Inc., Nassau & Suffolk Chapter (New York)	Construction	Electrical Workers (IBEW)	2,000
National Electrical Contractors Association, Philadelphia Division Penn-Del-Jersey Chapter (Interstate)	Construction	Electrical Workers (IBEW)	1,700
New York Industrial Council of the National Handbag Association (New York, N.Y.)	Leather	Leather Workers	2,750
North Texas Contractors Association, 2 Agreements (Texas)	Construction	Laborers and Carpenters	6,100
Owens-Corning Fiberglas Corp. (Kansas City, Kans.)	Stone, clay, and glass products	Building and Construction Trades Council	1,300
Pan American World Airways, Inc. (Interstate)[3]	Air transportation	Air Line Pilots	4,500
Painting & Decorating Contractors Association, Minnesota Chapter, Inc. (Minnesota)	Construction	Painters	1,200
Pathmark & Shop-Rite Supermarkets (Interstate)	Retail trade	Food and Commerical Workers	10,750
Plumbing Heating & Air Conditioning Contractors (Pennsylvania)	Construction	Plumbers	1,200
Public Service Co. of Indiana, Inc. (Indiana)	Utilities	Electrical Workers (IBEW)	2,100
Pullman, Inc., Pullman-Standard (Interstate)	Transportation equipment	Steelworkers	8,800
Sheet Metal & Air Conditioning Contractors National Association (District of Columbia, Virginia, and Maryland)	Construction	Sheet Metal Workers	1,400
Standard Oil Co. of California, Western Operations (California)	Petroleum	Seafarers	1,600
Textron, Inc., Sheaffer Eaton Division (Iowa)	Miscellaneous manufacturing	Auto Workers (Ind.)	1,300
West Tennessee Bargaining Group, Inc. (Memphis, Tenn.)	Construction	Carpenters	1,500

[1] Affiliated with AFL–CIO except where noted as independent (Ind.)
[2] Industry area (group of companies signing same contract).
[3] Information from newspaper source.

Developments in Industrial Relations



Chrysler cuts costs further to get additional loan

The financially troubled Chrysler Corp. again moved close to bankruptcy before it qualified for an additional $400 million in Federal loan guarantees. The Chrysler Loan Guarantee Board approved the company's survival plan after unions, suppliers, and lenders acceded to the board's demands and accepted more severe cost concessions than those in the original proposal. The board then said that Chrysler had met its obligation to submit an operating plan "for the 1980 fiscal year and the next three fiscal years demonstrating the ability of the corporation to continue as a going concern in the automobile business, and after December 31, 1983, to continue without additional guarantees or other Federal assistance." Last year, Chrysler received $800 million of the $1.5 billion in loan guarantees permitted by the Chrysler Corporation Loan Guarantee Act of 1979. (See *Monthly Labor Review,* March 1980, p. 56.)

The United Auto Workers agreed to reduce by $622 million the wage and benefit improvements scheduled under its existing 3-year contract, which expires in September 1982. This was in addition to the $466 million in reductions (from the General Motors Corp. and Ford Motor Co. settlement pattern) the union had accepted to help Chrysler win the earlier loan guarantee.

The latest concessions agreed to by the Auto Workers were elimination of the 3-percent deferred wage increases scheduled for March 1981 and 1982; elimination of the $1.15 an hour cost-of-living allowance and the provision for future quarterly adjustments in the allowance (employees would receive the scheduled March 1981 lump-sum payment for covered hours from December 1980 through February 1981); elimination of two scheduled increases in pensions and deferral of a third increase; elimination of three paid personal holidays, which would have become effective in the fourth quarter of 1982; and elimination of a scheduled 5-minute increase in paid lunch periods for employees in plants that operate 24 hours a day. The accord covered 64,000 active employees represented by the United Auto Workers; 40,000 others were on layoff.

Seven other unions, representing 4,000 employees agreed to similar wage and benefit concessions. The concessions by these unions, combined with those imposed by the company for its nonunion employees, totaled $161 million.

The unions also agreed to consider in the 1982 round of contract bargaining "the company's financial condition, the necessity for the company to be economically viable and the assumptions in the company's operating and financial plans."

Auto Workers' President Douglas A. Fraser described the settlement as the "worst . . . we've ever made, and the only thing that is worse is the alternative . . . no jobs for Chrysler workers."

However, the unions did win a commitment from Chrysler to negotiate a profit-sharing plan in the next few months ("contingent on adequate levels of future company performance"), access to company financial records, more employee involvement in management (Fraser presently is a company director), and certain commitments regarding the ratio of supervisors to workers and future plant closings.

Other aspects of the survival plan required (1) Chrysler to cancel or postpone introduction of new models, which was expected to cut expenditures $1.9 billion during the next 4 years; (2) lenders to accept preferred stock in exchange for nearly half of Chrysler's $1.1 billion debt, with the balance subject to payment at 30 cents on the dollar, if warranted by Chrysler's future financial condition; and (3) suppliers to maintain their January 1 price levels on sales to Chrysler and give the company a 5-percent discount on purchases during the first quarter. The discount was expected to total $36 million, with Chrysler also required to press the suppliers for another $36 million in discounts during the year.

Chrysler's financial condition also was improved by the State of Illinois' decision to lend the company $20 million. One of the conditions of the loan was that Chrysler could not reduce its permanent work force in Illinois by more than 40 percent during the loan term. Since the beginning of 1980, Chrysler also has obtained loans from some of the other States where it has facilities, including Michigan ($150 million), Indiana ($32 million), and Delaware ($5 million). Other States were still considering loan requests.

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

Firestone cuts labor costs at two plants

The continuing financial problems of the rubber industry were indicated by developments at Firestone Tire and Rubber Co., as workers at Memphis, Tenn., and Noblesville, Ind., plants agreed to company proposals for labor cost concessions.

Firestone officials at the Memphis plant said the concessions were necessary because the plant, which makes bias-ply tires, was operating at a loss. They forecast that, without the changes, the facility would have lost $7 million in 1981.

The settlement was worked out by a Joint Labor-Management Survival Committee. A major aspect called for a "restructuring" of jobs by mid-1981. All employees would be assured of their present pay level and incentive workers (about 25 percent of the 1,450 employees) will actually have higher "earnings expectancy." If the job evaluation for the nonincentive employees results in a finding that a particular job should be paid at a lower rate, affected employees would continue to receive their current pay but would not receive wage increases until the future increases total more than the difference between the two pay rates. Maintenance workers can now be required to perform certain functions outside their normal trade and are assured of higher pay rates when they attain proficiency in the new skills. Also, the plant will switch to a 7-day-a-week operation, with all weekend premium pay abolished and all work under 40 hours a week compensated at straight-time rates. The affected workers are represented by Local 186 of the Rubber Workers.

The union concessions for Memphis workers were embodied in a supplement to the master agreement between the Rubber Workers and Firestone. Memphis workers will receive the remaining quarterly cost-of-living adjustments and the April 1981 wage increase of 20 cents an hour provided in the master agreement, which expires in April 1982.

About 650 workers are involved in the concessions at Noblesville, which included a $1.40-an-hour wage cut; a reduction in paid holidays (from 11 to 9 days a year); a 1 week reduction in vacation after 30 years of service (to 5 weeks); a 10-cent-an-hour reduction in the night shift differential; reversion to the hospital-medical-surgical benefits that applied in 1976; termination of the SUB plan; and a cut in sickness and accident benefits to $110 a week for up to 26 weeks (was $140 a week for up to 52 weeks).

The workers will receive a 30-cent-an-hour wage increase in January 1983 and automatic cost-of-living adjustments in July 1984 and January 1985, calculated at 1 cent an hour for each 0.5-point movement in the Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100). However, the two adjustments are limited to a combined total increase of 35 cents.

The concessions for the Noblesville workers will continue for the duration of the master contract the Rubber Workers will negotiate with Firestone in 1982. In addition, the Noblesville workers will not receive any wage and benefit improvements provided by that contract. Firestone officials said the concessions were necessary to bring labor costs into line with competitors. The plant manufactures rubber shock absorbers, air suspension systems, and other products and is the only "nontire" plant covered by the master contract.

International Harvester announces pay freeze

International Harvester Co. moved to minimize labor costs by announcing an "indefinite" freeze on the salaries of 30,000 nonunion office workers. Salaries of the company's 26 corporate officers were cut 20 percent. Hourly paid workers, who are represented by the United Auto Workers, were not affected by the freeze. The company lost $400 million in the last fiscal year and officials attributed the need for a salary freeze to high interest rates and reduced demand for its farm and construction equipment.

U.S. soccer players get first contract

The North American Soccer League Players Association's and the soccer league negotiated their first collective bargaining agreement. The association began its organizing efforts in the league about 3 years ago and won representation rights for U.S. teams. However, negotiations did not begin until the fall of 1980, after the National Labor Relations Board ordered the league to bargain. A union official said that the six Canadian soccer teams would sign a separate but identical contract.

Terms of the 3-year accord for the 500 U.S. and Canadian players included minimum salaries of $18,000 for rookies, $19,200 for second-year players, and $22,800 for third-year players; a guarantee of at least the minimum salary for players dropped from the team during the season; a guarantee that an injured player will receive at least the minimum salary through the following year, as well as a $25,000-payment if the injury ends his career; provision for binding arbitration of disputes; and establishment of employer-financed jointly administered insurance benefits for active players and future retirees.

The parties also agreed to require each team to have at least four North American players beginning in 1982; the current minimum is two players. In addition, the parties agreed to develop a "reserve league" of American players.

The North American Soccer League Players Associa-

tion is a branch of the Federation of Professional Athletes chartered by the AFL-CIO in 1979.

Joy elected head of Utility Workers

James Joy, Jr., was elected president of the Utility Workers, succeeding Valentine P. Murphy, who resigned to assume the lighter duties of the executive vice president post Joy had held since 1979. Joy will fill the 3 years remaining of the presidential term of office. He also is a vice president of the New York State AFL-CIO, and holds other posts in organized labor.

Two maritime unions merge

The 500-member American Radio Association merged into the Masters, Mates, and Pilots union. American Radio President William R. Steinberg became a vice president of the Master, Mates, and Pilots and will represent the new Communications and Electronics Group on the union's executive board.

In addition to welcoming the American Radio Association, the executive board formally installed Masters, Mates, and Pilots officers for a 2-year term, based on the results of a mail referendum. The union, an affiliate of the International Longshoremen's Association, has been headed by Robert J. Lowen since 1978.

Ford settles job discrimination case

A nationwide 7-year job discrimination action against the Ford Motor Co. ended when the company and the Equal Employment Opportunity Commission reached an out-of-court settlement. The settlement calls for Ford to pay a total of $13 million to some 14,000 women and members of minority groups who were denied jobs or promotions. The amount consists of $8 million to be paid to unsuccessful applicants for hourly rated jobs in the early 1970's, $3.5 million to salaried minority and female employees hired before 1975, and $1.5 million to women in hourly paid jobs hired prior to 1972. An additional $10 million will be used for upward mobility purposes.

Ford agreed to fill more than 20 percent of production supervisory jobs and more than 15 percent of general supervisory jobs with minorities, and to hire women for production jobs at an average yearly rate of 30 percent. However, the new hiring policy will not begin until either January 1, 1982, or shortly after the number of hourly employees recalled from layoff brings Ford's hourly payroll to 170,000 for 2 consecutive months. A company official said that the hourly work force currently stood at 133,000 and that 50,000 workers were on layoff.

Ford denied any violation of the 1964 Civil Rights Act, saying that it had agreed to the terms of the settlement "to eliminate various longstanding areas of disagreement" between Ford and the commission and "to avoid the possibility of prolonged litigation." This was the second largest out-of-court settlement in the commission's history, exceeded only by a $29.4-million settlement with the General Electric Co. in 1978.

Firm to pay $5 million in 1956 plant closing

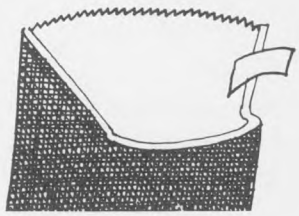
One of the longest labor-management disputes in U.S. history ended when former employees of a Darlington, S.C., textile plant approved a plan to distribute $5 million among themselves and heirs of workers who died after the plant closed in 1956. The shutdown by the Deering Milliken Co. came shortly after the Textile Workers Union of America won a representation election, leading to union charges that the action had been taken to thwart organizing efforts. In the following years, the case moved through a number of appearances before the National Labor Relations Board and the Federal courts, including two appeals to the Supreme Court. The final determination was that the company had engaged in unfair labor practices.

According to an official of the Amalgamated Clothing and Textile Workers, the settlement provides for individual payments ranging from $50 to $36,000. The Amalgamated Clothing and Textile Workers resulted from the 1976 merger of the Textile Workers and the Amalgamated Clothing Workers.

Agreement ends 3-week strike at Hershey

The first strike since 1953 against the Hershey Chocolate Co. of Pennsylvania ended when members of the Bakery, Confectionery and Tobacco Workers ratified a 3-year contract. The 3-week strike began when the previous contract expired.

The new agreement covered 2,900 workers and provided for wage increases of 55 cents an hour effective immediately, 5 cents in May 1981, 5 percent in November 1981, and 4 percent in November 1982, and for continuation of the wage escalator clause. Benefit changes included an immediate $25-a-month increase in the normal pension for 25-year workers, bringing it to $425, and a $25-increase in the third contract year. A paid holiday also was added, bringing the total to 10. □



Book Reviews

The Post-Keynesian-neoclassicist split

A Guide to Post-Keynesian Economics. Edited by Alfred S. Eichner. White Plains, N.Y., M. E. Sharpe, Inc., 1979. 202 pp. $12.95.

The battlelines have been drawn, the encampments have been put in place, skirmishes occur frequently, and occasionally an (apparently) ineffectual pitched battle is waged. The opponents are two of several factions that form the confraternity of economic theorists. There are the "neoclassicists" or successors to Walras and his distinguished line of marginalists and the "Post-Keynesians whom Alfred S. Eichner defines as "members of several dissident traditions within economics—that of the American institutionalists and the continental Marxists, as well as that of Keynes' closest associates." The student of economics may see this as simply another instance of the continuing disagreement between the "microeconomic" theorists (read marginalists) and the "macroeconomic" theorists (read income theorists).

The Post-Keynesians are well aware that the neoclassicists have, in the form of marginal analysis and supply-demand analysis, an explanatory theoretical economic paradigm. However, they appear to disregard or discount its normative character, disagree with its emphasis on the (relative) pricing mechanism and the resulting substitution effects, and maintain that it is out of touch with reality. Eichner holds neoclassical theory responsible for the "debacle over the problem of inflation. Consequently, the Post-Keynesians are erecting an alternative paradigm, one that is more realistic and meaningful.

The general outline of this paradigm was summarized in a "state of the arts" article. (Alfred S. Eichner and J. A. Kregel, "An Essay on Post-Keynesian Theory: A New Paradigm in Economics," *The Journal of Economic Literature,* December 1975, pp. 1293–1314.) Although aware that "establishment" views die hard, Eichner was disappointed with the unenthusiastic reception. In an attempt to reach a wider audience, he collaborated with the editor of *Challenge* in publishing a series of articles on various aspects of Post-Keynesianism.

The present volume includes 10 articles which were published in various issues of *Challenge.* These articles cover a wide variety of topics: macrodynamics, pricing, income distribution, tax incidence, production theory, the Sraffian contribution, the labor market, monetary factors, the international dimension, and natural resources. Each analysis presents the Post-Keynesian explanation, the neoclassical doctrine's weaknesses, and concludes with statements on policy. In the foreword, Joan Robinson establishes and describes the theoretical underpinnings of Post-Keynesianism. Her attacks on the neoclassical position are centered on its equilibrium tendencies and on the use of a national production function. She states that the economy does not tend to an equilibrium, and that the very heterogeneity of its capital structure can only result in a "pseudo-production function" of dubious value. Eichner's introductory chapter is a useful historical summary of the recent parallel developments of Post-Keynesianism and neoclassical theory. The final chapter, also by Eichner, is a recapitulation of the book's virtues; policy implications of Post-Keynesianism are also discussed. Unfortunately, both optimism and pessimism are expressed and the book ends on the nontheoretical note that our political institutions are yet immature.

Of special interest are the chapters on "Pricing" and "The Labor Market." Regarding price theory, the Post-Keynesians admit that their analysis is still in an embryonic state of development. Briefly, they dichotomize the economy. One sector, that of small firms, is characterized by conditions approaching pure competition. The other sector, that of oligopolistic industries, is characterized by a lack of price competition. In this latter sector, firms simply mark up their prices to generate sufficient profits for investment and labor costs. In any event, relative prices are unimportant. An important source of price competition is assumed nonexistent. Yet, it is difficult to concur that there do not exist significant and competitive price interrelationships between competing products, such as steel and aluminum, or between competing industries, such as the U.S. auto industry and foreign automobile manufacturers. For the labor market, there is no price-clearing mechanism (in the form of supply and demand). The demand for labor is a function of institutional characteristics, the prevailing technology and pricing decisions of firms with market power. The demand is not related to the marginal product of labor. The Post-Keynesians claim that oligopolies are relatively insensitive to capital-labor ra-

tios because firms' cost curves are relatively constant over varying output at a given point in time. However, they appear to disregard the variability over time of cost functions. Further, if the price of labor is relatively inconsequential, they do not explain the continuous shift into capital intensity regardless of demand requirements.

The attempt by Post-Keynesians to introduce institutional factors as explanatory reasons is certainly laudable, and, of course, not restricted to them. The following is an interesting hypothesis. They contend that the larger oligopolistic firms are characterized by high capital to labor ratios, sophisticated technology, high wages, a need for a relatively highly skilled labor force, and considerable unionization. These firms make up the "primary sector" which is characterized by relatively low, or at least lower, unemployment rates. All other firms contain the "secondary sector" characterized by generally less skilled labor and relatively high, or at least higher, unemployment rates. As an approximation, this reviewer examined the 1975 relationship between industry concentration and unemployment rates. (The economy was divided into 17 industries, and for each were noted: (a) the percent of the industry's assets accounted for by firms of asset-size of $250 million and over, and (b) the industry's unemployment rate.) The resulting somewhat significant negative rank correlation coefficient indicates that an inverse relationship between industry concentration and unemployment (rates) appears to exist. One can conclude that the Post-Keynesians' contention is not groundless and merits confirmation (or refutation). Such an analysis should also shed interesting light on the configuration of unemployment.

One may find this book controversial. One may bemoan the authors' lavish use of the very marginalist concepts they eschew. Yet, one cannot help but find it thought-provoking.

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Labor history in black and white

History of the Labor Movement in the United States: Vol. V, The AFL in the Progressive Era, 1910–1915. By Philip S. Foner. New York, International Publishers, 1980. 293 pp. $15, cloth; $4.95, paper.

In the 1940's and 1950's, one of the most popular forms of entertainment was the western movie. The essence of these horse operas was the quintessential battle between the forces of good and evil. The heroes were identified by their white hats, the villains were starkly contrasted in black 10-gallon chapeaus. Although based on actual events (for example, The Gunfight at the O.K. Corral), these tales of the Old West often projected a less than accurate picture. This book, by Philip Foner, reminds me of those old western movies.

To Foner, the rank-and-file union members, the radical militants, and other assorted members of the proletariat wore the white hats, while employers, foremen, government officials, and the more conservative labor leaders—called "class collaborationists"—wore the black ones. Quite often, the alleged villain deserved his *black hat* status, but in too many instances the opposite was true; the author apparently holds the awarding of *grey hats* as heretical.

Foner recognized contributions made to the labor movement by blacks, women, immigrants, and other minorities long before it became popular to do so. Unfortunately, his ideological bent—he makes no secret of his Marxist sympathies—triumphs over historical objectivity. This volume of *The History of the Labor Movement in the United States* is no exception and that is a pity for it limits the usefulness of this otherwise fascinating study, the most comprehensive research on the labor movement since Commons and Associates wrote the *History of Labour in the United States* in 1918.

This volume is, like its predecessors, not for general reading. The slanted opinions of the author would probably be undetected by the casual reader, and they may even slip by the novice student of the labor movement. For example, Foner constantly blames the failures, and near failures, of the American Federation of Labor on its president, Samuel Gompers. The criticism is progressively subtle and quite often without documentation.

Chapter five provides a good illustration. The AFL leader wanted to impress on President Woodrow Wilson that organized labor would not support him, by endorsement or otherwise, unless the Administration worked to exempt labor from the despised Sherman Antitrust Act of 1890—the act had commonly been used by the judiciary against labor during work stoppages. Foner commented that, "regardless of whether or not Gompers would have carried out his threat to break with the Wilson Administration there was not to be any need for a fight" (p. 124). The subtle inference to Gompers' strength of character may, at first, seem innocuous, but Foner continues hurling such barbs throughout the book (pp. 44, 47, 63, 88, 90, 99, 102, and 136, among others).

The AFL in the Time of Gompers, by Philip Taft—the dean of labor historians—covers much of the same material as this fifth volume of the history of the labor movement; however, by comparison, it seems alien.

Gompers, in turn, would have to be two different people to accomodate both authors.

Another method which Foner utilizes to prove his own conclusions is the omission of contradictory material. For example, he claims that President Theodore Roosevelt made no gestures of good faith towards organized labor (pp. 110–11). Specifically, he states: " . . . organized labor felt that Roosevelt was not really sympathetic to organized labor's fundamental right to organize." He adds, "he (Roosevelt) had done nothing to halt the use of injunctions in labor disputes . . . . "

Jonathan Grossman's article, "The coal strike of 1902—turning point in U.S. policy" *(Monthly Labor Review,* October 1975) states otherwise. Grossman comments that in ameliorating differences in the Anthracite Coal Strike, Roosevelt's efforts "marked the turn of the U.S. Government from strikebreaker to peacemaker in industrial disputes." The public papers of Roosevelt, edited by Elting Morison (vol. 6, pp. 338, 342, 346), also illustrate that the President, while not always sympathetic to labor, was not always against it, as shown by his opposition to the use of injunctions under the Sherman Antitrust Act.

There are numerous errors in this book, another legacy from previous volumes. On page 120, for example, Foner incorrectly states:

> Agitation for a Department of Labor was begun soon after the Civil War by William H. Silvus. The movement was taken up by the Knights of Labor, and that effort led to the establishment in 1888 of the Bureau of Labor Statistics.

In "The origin of the U.S. Department of Labor," (*Monthly Labor Review,* March 1973), Jonathan Grossman, correctly states that agitation by organized labor for a Federal department led to the establishment of a Bureau of Labor Statistics in 1884, followed by a Department of Labor without Cabinet rank in 1888. On page 96, Foner writes that in the "Danbury Hatters" controversy, organized labor opposed the practices of the "Lowe Co." The correct spelling of that company is "Loewe & Co."

Such errors are, in light of the abundant resources at Foner's command, unnecessary and disappointing. He has a virtual cornucopia of bibliographic material to choose from, including public and private papers of many key figures of the period, local and national newspapers and periodicals, standard and little utilized secondary sources, and a host of unpublished dissertations.

Chapter 8 provides a good illustration of his abundant sources. This chapter deals with industrial warfare in the coal fields of West Virginia, 1912–13. Foner utilizes the correspondence between Mary "Mother" Jones, labor organizer and ubiquitous figure in many mining disputes, and key government officials, including the Secretary of Labor. He also cites several Socialist and labor publications—*United Mine Workers Journal, New York Call, International Socialist Review*—as well as the standard newspapers, *The New York Tribune* and *The New York Times.* As an overall analysis, Foner refers to David Corbin's award-winning article "Betrayal in the West Virginia Coal Fields" (pp. 193–94).

With such fine sources, and considering the intensity and indefatigability with which Foner works, it is a shame the book is biased, for it is a fascinating study. Foner whets the reader's appetite with an opening account of the trial of the McNamara Brothers in 1910; a *cause celebre* amongst the ranks of organized labor and a major controversy in the early part of the century. He then devotes several chapters to an overall survey of labor in general, and the AFL, in particular, before concentrating on more specific events in the last seven chapters. Among these specific topics are: The Philadelphia General Strike of 1910; Revolt of the Colorado Miners, 1913–14, including a graphic account of the infamous "Ludlow Massacre"; and The Shopmen's Strike on the Harriman Railroad System.

The expressive and captivating style, the abundant documentation and the natural drama of the events themselves should have made this book, and its companion books in the overall history, the bible of labor history. Distortion of fact prevents that from happening. Philip Foner should not have played "heroes and villains" with such an important work.

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Publications received

Economic growth and development

Economic Council of Canada, *A Climate of Uncertainty: Seventeenth Annual Review.* Hull, Quebec, Economic Council of Canada, 1980, 169 pp. $8.75, Canada; $10.50, other countries. Available from Canadian Government Publishing Center, Supply and Services, Canada, Hull, Quebec.

Rima, Ingrid H., *Labor Markets, Wages and Employment.* New York, W. W. Norton & Co., Inc., 1981, 399 pp. $14.95.

Sandler, Todd and John T. Tschirhart, "The Economic Theory of Clubs: An Evaluative Survey," *Journal of Economic Literature,* December 1980, pp. 1481–1521.

Stone, Richard, "Whittling Away at the Residual: Some Thoughts on Denison's Growth Accounting: A Review Article," *Journal of Economic Literature,* December 1980, pp. 39–43.

Industrial relations

Cunningham, Richard M., "Labor-Management Relations in the Federal Sector: Democracy or Paternalism?" *Labor*

Law Journal, October 1980, pp. 636–44.

Edes, Nik B., "Compensation for Occupational Diseases," *Labor Law Journal,* October 1980, pp. 595–601.

Frank, Nancy K., "A Question of Equity: Workers' 'Right to Refuse' Under OSHA Compared to the Criminal Necessity Defense," *Labor Law Journal,* October 1980, pp. 617–26.

Kollins, Thomas K., *How to Cost Your Labor Contract.* Arlington, Va., Graphic Arts Union Employers of America, 1979, 88 pp.

Kumar, Pradeep, *Professionalism in the Canadian P/IR Function: Report of a Survey of Education, Training and Experience of Personnel and Industrial Relations Practitioners.* Kingston, Ontario, Canada, Queen's University at Kingston, Industrial Relations Center, 1980, 68 pp. (Research and Current Issues Series, 39.) $5, paper.

Lane, Marc J., *Legal Handbook for Nonprofit Organizations.* New York, AMACOM, A division of American Management Associations, 1980, 294 pp. $17.95.

Leap, Terry L., William H. Holley, Jr., Hubert S. Feild, "Equal Employment Opportunity and Its Implications for Personnel Practices in the 1980's," *Labor Law Journal,* November 1980, pp. 669–82.

Levine, Marvin J., "The Status of State 'Sunshine Bargaining' Laws," *Labor Law Journal,* November 1980, pp. 709–13.

Industry and government organization

Langford, Thomas W. and C. Vincent Manoogian, *The Economic Impacts of Proposed Regulations for Mandatory Deposits on Beverage Containers in Illinois, R71–24 and R75–14.* Chicago, Ill., Institute of Natural Resources, Environmental Management Division, 1980, 239 pp., bibliography.

Vogel, David, "A Funny Thing Happened to the Down-with-Big-Business Movements," *Across the Board,* December 1980, pp. 45–52.

International economics

Crockett, Andrew D. and Owen J. Evans, "Demand for Money in Middle Eastern Countries," *International Monetary Fund Staff Papers,* September 1980, pp. 543–77.

Fiebig, D. G., "The Casual Relationship Between Money and Income in Australia," *Austrailian Economic Papers,* June 1980, pp. 78–90.

Ghosh, Sukesh K., "Unemployment and Optimum Balance of Payments Deficit," *Australian Economic Papers,* June 1980, pp. 203–10.

Keller, Peter M., "Implications of Credit Policies for Output and the Balance of Payments," *International Monetary Fund Staff Papers,* September 1980, pp. 451–77.

Khatkhate, Deena R. and Klaus-Walter Riechel, "Multipurpose Banking: Its Nature, Scope, and Relevance for Less Developed Countries," *International Monetary Fund Staff Papers,* September 1980, pp. 478–516.

Labor and economic history

"Canada," *Current History,* November 1980, pp. 113–38.

Greenwald, Maurine Weiner, *Women, War, and Work: The Impact of World War I on Women Workers in the United States.* Westport, Conn., Greenwood Press, 1980, 309 pp., bibliography. $27.50.

Jensen, Joan M., *With These Hands: Women Working on the Land.* Old Westbury, N.Y., The Feminist Press, 1981, 295 pp. $6.95, paper.

Kessler-Harris, Alice, *Women Have Always Worked: A Historical Overview.* Old Westbury, N.Y., The Feminist Press, 1981, 193 pp. $5.95, paper.

McNulty, Paul J., *The Origins and Development of Labor Economics: A Chapter in the History of Social Thought.* Cambridge, Mass., The MIT Press, 1980, 248 pp. $17.50.

Labor force

Jilek, T. S. and R. E. Temple-Smith, "Additional Workers—Concepts, Measurement and Policy," *Australian Economic Papers,* June 1980, pp. 219–23.

Raelin, Joseph A., *Building a Career: The Effect of Initial Job Experiences and Related Work Attitudes on Later Employment.* Kalamazoo, Mich., The W. E. Upjohn Institute for Employment Research, 1980, 178 pp. $7, cloth; $4.50, paper.

U.S. Bureau of the Census, *Migration to Nonmetropolitan Areas: Appraising the Trends and Reasons for Moving.* By Larry H. Long and Diana DeAre. Washington, U.S. Department of Commerce, Bureau of the Census, 29 pp. $2, Superintendent of Documents, Washington 20402.

Waite, Linda J., "Working Wives and the Family Life Cycle," *American Journal of Sociology,* September 1980, pp. 272–94.

Wilson, Kenneth L. and Alejandro Portes, "Immigrant Enclaves: An Analysis of the Labor Market Experiences of Cubans in Miami," *American Journal of Sociology,* September 1980, pp. 295–319.

Management and organization theory

Corbin, Richard H. and R. Donald Gamache, *Creating Profitable New Products and Markets.* New York, AMACOM, A division of American Management Associations, 1980, 53 pp., bibliography. $5, AMA members; $7.50, nonmembers.

Ellis, Daryl J. and Peter P. Pekar, Jr., *Planning for Nonplanners: Planning Basics for Managers.* New York, AMACOM, A division of American Management Associations, 1980, 152 pp. $12.95.

Frank, Michael R., *The Effective EDP Manager.* New York, AMACOM, A division of American Management Associations, 1980, 197 pp. $17.95.

Freiman, David J., "Smart Marketing in a Time of Economic Crisis, *S.A.M. Advanced Management Journal,* Autumn 1980, pp. 21–34.

Gruenberg, Barry, "The Happy Worker: An Analysis of Educational and Occupational Differences in Determinants of Job Satisfaction," *American Journal of Sociology,* September 1980, pp. 247–71.

Wages and compensation

Margolick, David, "The Lonely World of Night Work," *Fortune,* Dec. 15, 1980, pp. 108–14.

Rao, B. Bhaskara, "Inflationary and Efficiency Effects of Relative Wage Distortions: The Australian Case," *Australian*

Economic Papers, June 1980, pp. 68–77.

Ronen, Simcha, *Flexible Working Hours: An Innovation in the Quality of Work Life.* New York, McGraw-Hill Book Co., Inc., 1981, 353 pp. $18.95.

U.S. Bureau of Labor Statistics, *Industry Wage Survey: Drug Manufacturing, September 1978.* Washington, 1980, 43 pp. (Bulletin 2077.) $3.25, Superintendent of Documents, Washington 20402.

Worker training and development

Beaumont, Andre G., Alva C. Cooper, Raymond H. Stockard, *A Model Career Counseling and Placement Program.* 3d ed. Bethlehem, Pa., College Placement Services, Inc., 1980, 376 pp. $12.50, paper.

Holder, Todd, "Job Finding and Career Planning: A Course Outline," *Occupational Outlook Quarterly,* Fall 1980, pp. 28–31.

Mangum, Garth and others, *Job Market Futurity: Planning and Managing Local Manpower Programs.* Salt Lake City, Utah, Olympus Publishing Co., 1979, 398 pp.

Martin, Gail M., "A Guide to Setting Up a Career Resource Center," *Occupational Outlook Quarterly,* Fall 1980, pp. 12–17.

———"The Job Hunter's Guide to the Library," *Occupational Outlook Quarterly,* Fall 1980, pp. 6–11.

Mirengoff, William and others, *The New CETA: Effect on Public Service Employment Programs Final Report.* Washington, The National Research Council, Assembly of Behavioral and Social Sciences, Committee on Evaluation of Employment and Training Programs, 1980, 185 pp. Available from National Academy Press, Washington.

Rudney, Shirley, "Writers and Editors: Or Oh Ye Scribes and Scholiasts," *Occupational Outlook Quarterly,* Fall 1980, pp. 18–21.

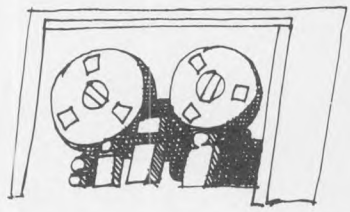
Sexton, Robert F., *Barriers to the Older Student: The Limits of Federal Financial Aid Benefits.* Washington, National Institute for Work and Learning, 1980, 27 pp.

Shaw, Lois B., *A Profile of Women Potentially Eligible for the Displaced Homemaker Program Under the Comprehensive Employment and Training Act of 1978.* Columbus, The Ohio State University, College of Administrative Science, Center for Human Resource Research, 1979, 19 pp. 80 cents.

U.S. Bureau of Labor Statistics, *A Counselor's Guide to Occupational Information.* Washington, 1980, 60 pp. (Bulletin 2042.) Stock No. 029–001–02490–8. $3.50, Superintendent of Documents, Washington 20402.

U.S. Occupational Safety and Health Administration, *Training Requirements in OSHA Standards,* Rev. ed. Washington, U.S. Department of Labor, Occupational Safety and Health Administration, 1979, 62 pp. Single copy free. □

Current Labor Statistics



NOTES ON CURRENT LABOR STATISTICS

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

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

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

Seasonally adjusted labor force data in tables 2–7 were revised in the February 1981 issue of the *Review* to reflect the preceding year's experience. Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are being seasonally adjusted with a new procedure called X-11/ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year for the July-December period. Revisions of historical data continue to be made only at the end of each calendar year.

Annual revision of the seasonally adjusted payroll data in tables 11, 13, 16, and 18 begins with the August 1980 issue using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 33 and 34 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

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

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

Symbols

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

Schedule of release dates for major BLS statistical series

Title and frequency (monthly except where indicated)	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	March 6	February	April 3	March	1–11
Producer Price Index	March 6	February	April 3	March	26–30
Consumer Price Index	March 24	February	April 23	March	22–25
Real earnings	March 24	February	April 23	March	14–20
Labor turnover in manufacturing	March 27	February	April 29	March	12–13
Work stoppages	March 31	February	April 29	March	37
Major collective bargaining settlements (quarterly)	....	....	April 27	1st quarter	35–36
Productivity and costs:					
Nonfarm business and manfacturing	....	....	April 27	1st quarter	31–34

EMPLOYMENT DATA FROM THE HOUSEHOLD SURVEY

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 65,000 households beginning in January 1980, selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

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

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

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

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

Notes on the data

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

Data in tables 2–7 are seasonally adjusted, based on the seasonal experience through December 1980.

1. Employment status of the noninstitutional population, 16 years and over, selected years, 1950–80

[Numbers in thousands]

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

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

[Numbers in thousands]

Employment status	Annual average		1980												1981
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
TOTAL															
Total noninstitutional population[1]	163,620	166,246	165,101	165,298	165,506	165,693	165,886	166,105	166,391	166,578	166,789	167,005	167,201	167,396	167,585
Total labor force	104,996	106,821	106,289	106,357	106,261	106,519	107,148	106,683	107,119	107,059	107,101	107,288	107,404	107,191	2,125
Civilian noninstitutional population[1]	161,532	164,143	163,020	163,211	163,416	163,601	163,799	164,013	164,293	164,464	164,667	164,884	165,082	165,272	165,460
Civilian labor force	102,908	104,719	104,208	104,271	104,171	104,427	105,060	104,591	105,020	104,945	104,980	105,167	105,285	105,067	105,543
Employed	96,945	97,270	97,708	97,817	97,628	97,225	97,116	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696
Agriculture	3,297	3,310	3,287	3,329	3,337	3,262	3,352	3,232	3,267	3,210	3,399	3,319	3,340	3,394	3,403
Nonagricultural industries	93,648	93,960	94,421	94,488	94,291	93,963	93,764	93,548	93,732	93,793	93,781	93,887	93,999	93,888	94,294
Unemployed	5,963	7,448	6,500	6,454	6,543	7,202	7,944	7,811	8,021	7,942	7,800	7,961	7,946	7,785	7,847
Unemployment rate	5.8	7.1	6.2	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4
Not in labor force	58,623	59,425	58,812	58,940	59,245	59,174	58,739	59,422	59,273	59,519	59,687	59,717	59,797	60,205	59,917
Men, 20 years and over															
Civilian noninstitutional population[1]	68,293	69,607	69,047	69,140	69,238	69,329	69,428	69,532	69,664	69,756	69,864	69,987	70,095	70,198	70,320
Civilian labor force	54,486	55,234	54,892	55,017	54,966	55,127	55,440	55,182	55,344	55,403	55,475	55,495	55,539	55,470	55,443
Employed	52,264	51,972	52,263	52,436	52,230	51,935	51,871	51,624	51,714	51,791	51,823	51,963	52,007	52,045	52,091
Agriculture	2,350	2,355	2,401	2,418	2,386	2,334	2,337	2,301	2,306	2,301	2,389	2,351	2,372	2,331	2,378
Nonagricultural industries	49,913	49,617	49,862	50,018	49,844	49,601	49,494	49,323	49,408	49,490	49,434	49,612	49,635	49,714	49,713
Unemployed	2,223	3,261	2,629	2,581	2,736	3,192	3,569	3,558	3,630	3,612	3,652	3,532	3,532	3,425	3,352
Unemployment rate	4.1	5.9	4.8	4.7	5.0	5.8	6.4	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0
Not in labor force	13,807	14,373	14,155	14,123	14,272	14,202	13,988	14,350	14,320	14,353	14,389	14,492	14,556	14,728	14,877
Women, 20 years and over															
Civilian noninstitutional population[1]	76,860	78,295	77,656	77,766	77,876	77,981	78,090	78,211	78,360	78,473	78,598	78,723	78,842	78,959	79,071
Civilian labor force	38,910	40,243	39,852	39,871	39,845	40,098	40,193	40,182	40,383	40,523	40,317	40,486	40,629	40,570	40,942
Employed	36,698	37,696	37,538	37,560	37,550	37,597	37,600	37,613	37,728	37,890	37,804	37,754	37,909	37,820	38,191
Agriculture	591	575	543	568	557	560	598	550	564	555	592	576	574	665	621
Nonagricultural industries	36,107	37,120	36,995	36,992	36,973	37,037	37,002	37,063	37,164	37,335	37,212	37,178	37,335	37,155	37,570
Unemployed	2,213	2,547	2,314	2,311	2,295	2,501	2,593	2,569	2,655	2,633	2,513	2,732	2,720	2,750	2,750
Unemployment rate	5.7	6.3	5.8	5.8	5.8	6.2	6.5	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7
Not in labor force	37,949	38,052	37,804	37,895	38,031	37,883	37,897	38,029	37,977	37,950	38,281	38,237	38,213	38,389	38,129
Both sexes, 16 - 19 years															
Civilian noninstitutional population[1]	16,379	16,242	16,317	16,305	16,302	16,291	16,281	16,271	16,268	16,235	16,205	16,174	16,145	16,114	16,069
Civilian labor force	9,512	9,242	9,464	9,383	9,360	9,202	9,427	9,227	9,293	9,019	9,188	9,186	9,117	9,027	9,158
Employed	7,984	7,603	7,907	7,821	7,848	7,693	7,645	7,543	7,557	7,322	7,553	7,489	7,423	7,417	7,414
Agriculture	356	380	343	343	374	368	377	381	397	354	418	392	394	398	404
Nonagricultural industries	7,628	7,223	7,564	7,478	7,474	7,325	7,268	7,162	7,160	6,968	7,135	7,097	7,029	7,019	7,010
Unemployed	1,528	1,640	1,557	1,562	1,512	1,509	1,782	1,684	1,736	1,697	1,635	1,697	1,694	1,610	1,744
Unemployment rate	16.1	17.7	16.5	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0
Not in labor force	6,867	7,000	6,853	6,922	6,942	7,089	6,854	7,044	6,975	7,216	7,017	6,988	7,028	7,087	6,911
White															
Civilian noninstitutional population[1]	141,614	143,657	142,806	142,951	143,115	143,254	143,403	143,565	143,770	143,900	144,051	144,211	144,359	144,500	144,651
Civilian labor force	90,602	92,171	91,783	91,873	91,802	92,044	92,501	92,134	92,335	92,288	92,317	92,516	92,562	92,383	92,832
Employed	86,025	86,380	86,760	86,869	86,723	86,389	86,251	86,007	86,075	86,067	86,307	86,371	86,409	86,377	86,620
Unemployed	4,577	5,790	5,023	5,004	5,079	5,655	6,250	6,127	6,260	6,221	6,010	6,145	6,153	6,006	6,213
Unemployment rate	5.1	6.3	5.5	5.4	5.5	6.1	6.8	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7
Not in labor force	51,011	51,486	51,023	51,078	51,313	51,210	50,902	51,431	51,435	51,612	51,734	51,695	51,797	52,117	51,819
Black and other															
Civilian noninstitutional population[1]	19,918	20,486	20,214	20,261	20,301	20,346	20,395	20,448	20,523	20,564	20,617	20,673	20,723	20,771	20,809
Civilian labor force	12,306	12,548	12,453	12,395	12,320	12,401	12,546	12,491	12,661	12,630	12,677	12,686	12,706	12,668	12,684
Employed	10,920	10,890	10,974	10,945	10,856	10,838	10,842	10,809	10,902	10,902	10,894	10,884	10,922	10,895	11,051
Unemployed	1,386	1,658	1,479	1,450	1,464	1,563	1,704	1,682	1,759	1,728	1,783	1,802	1,784	1,773	1,634
Unemployment rate	11.3	13.2	11.9	11.7	11.9	12.6	13.6	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9
Not in labor force	7,612	7,938	7,761	7,866	7,981	7,945	7,849	7,957	7,862	7,934	7,940	7,987	8,017	8,103	8,125

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

3. Selected employment indicators, seasonally adjusted

[In thousands]

Selected categories	Annual average		1980												1981
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CHARACTERISTIC															
Total employed, 16 years and over	96,945	97,270	97,708	97,817	97,628	97,225	97,116	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696
Men	56,499	55,988	56,458	56,631	56,489	56,054	55,914	55,597	55,678	55,589	55,754	55,881	55,897	55,920	56,012
Women	40,446	41,283	41,250	41,186	41,139	41,171	41,202	41,183	41,321	41,414	41,426	41,325	41,442	41,362	41,684
Married men, spouse present	39,090	38,302	38,714	38,827	38,706	38,373	38,197	38,220	38,049	37,987	38,027	38,142	38,167	38,231	38,182
Married women, spouse present	22,724	23,097	23,104	23,150	23,171	23,094	23,145	23,131	23,118	23,126	23,027	22,993	23,065	23,063	23,352
OCCUPATION															
White-collar workers	49,342	50,809	50,307	50,447	50,336	50,465	50,627	50,836	51,023	51,307	51,074	51,101	51,148	51,065	51,594
Professional and technical	15,050	15,613	15,353	15,423	15,408	15,528	15,540	15,682	15,717	15,751	15,540	15,780	15,863	15,810	15,965
Managers and administrators, except farm	10,516	10,919	10,638	10,953	10,765	10,773	10,877	10,901	10,999	11,109	11,007	10,979	11,016	11,009	11,363
Salesworkers	6,163	6,172	6,383	6,179	6,132	6,048	6,072	6,046	6,130	6,140	6,316	6,277	6,155	6,175	6,265
Clerical workers	17,613	18,105	17,933	17,892	18,031	18,116	18,138	18,207	18,177	18,307	18,211	18,065	18,114	18,071	18,001
Blue-collar workers	32,066	30,800	31,770	31,669	31,568	31,120	30,800	30,443	30,276	30,232	30,436	30,521	30,550	30,373	30,338
Craft and kindred workers	12,880	12,529	12,806	12,722	12,740	12,713	12,551	12,357	12,403	12,346	12,490	12,485	12,424	12,337	12,306
Operatives, except transport	10,909	10,346	10,691	10,648	10,556	10,450	10,379	10,233	10,189	10,147	10,202	10,210	10,247	10,194	10,331
Transport equipment operatives	3,612	3,468	3,591	3,557	3,551	3,495	3,458	3,429	3,354	3,478	3,434	3,443	3,429	3,402	3,322
Nonfarm laborers	4,665	4,456	4,682	4,742	4,721	4,462	4,412	4,424	4,330	4,261	4,310	4,383	4,450	4,440	4,380
Service workers	12,834	12,958	12,968	13,005	12,982	13,009	12,947	12,941	13,017	12,928	12,943	12,891	12,888	12,982	12,946
Farmworkers	2,703	2,704	2,648	2,745	2,718	2,682	2,730	2,625	2,694	2,620	2,757	2,735	2,729	2,804	2,737
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,413	1,384	1,421	1,411	1,429	1,377	1,396	1,369	1,360	1,282	1,417	1,363	1,417	1,411	1,465
Self-employed workers	1,580	1,628	1,563	1,636	1,612	1,602	1,642	1,606	1,631	1,640	1,688	1,640	1,612	1,655	1,615
Unpaid family workers	304	297	294	293	295	287	292	278	295	280	309	325	324	305	284
Nonagricultural industries:															
Wage and salary workers	86,540	86,706	87,377	87,192	87,110	86,789	86,722	86,370	86,432	86,490	86,395	86,587	86,643	86,513	87,125
Government	15,369	15,624	15,457	15,539	15,605	15,635	15,720	15,817	15,718	15,531	15,575	15,597	15,651	15,653	15,738
Private industries	71,171	71,081	71,920	71,653	71,505	71,154	71,002	70,553	70,714	70,959	70,820	70,990	70,992	70,860	71,387
Private households	1,240	1,166	1,159	1,181	1,140	1,151	1,197	1,204	1,230	1,196	1,125	1,144	1,148	1,110	1,197
Other industries	69,931	69,915	70,761	70,472	70,365	70,003	69,805	69,349	69,484	69,763	69,695	69,846	69,844	69,750	70,190
Self-employed workers	6,652	6,850	6,751	6,841	6,807	6,804	6,698	6,728	6,801	6,881	6,977	7,005	6,943	6,973	6,839
Unpaid family workers	455	404	390	400	385	363	406	445	426	403	416	417	405	396	422
PERSONS AT WORK [1]															
Nonagricultural industries	88,133	88,325	89,109	88,830	88,505	88,041	87,974	87,994	87,431	88,195	88,246	88,488	88,694	88,468	89,499
Full-time schedules	72,647	72,022	72,963	72,937	72,618	71,986	71,501	71,454	70,825	71,526	71,929	72,071	72,265	72,131	72,807
Part time for economic reasons	3,281	3,965	3,549	3,454	3,470	3,803	4,276	3,969	4,086	4,143	4,183	4,220	4,176	4,218	4,474
Usually work full time	1,325	1,669	1,562	1,415	1,481	1,680	1,998	1,734	1,794	1,709	1,701	1,685	1,620	1,647	1,698
Usually work part time	1,956	2,296	1,987	2,039	1,989	2,123	2,278	2,235	2,292	2,434	2,482	2,535	2,556	2,571	2,776
Part time for noneconomic reasons	12,205	12,338	12,597	12,439	12,417	12,252	12,197	12,571	12,520	12,526	12,134	12,197	12,253	12,119	12,218

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

4. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1980												1981
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CHARACTERISTIC															
Total, 16 years and over	5.8	7.1	6.2	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4
Men, 20 years and over	4.1	5.9	4.8	4.7	5.0	5.8	6.4	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0
Women, 20 years and over	5.7	6.3	5.8	5.8	5.8	6.2	6.5	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7
Both sexes, 16–19 years	16.1	17.7	16.5	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0
White, total	5.1	6.3	5.5	5.4	5.5	6.1	6.8	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7
Men, 20 years and over	3.6	5.2	4.2	4.1	4.5	5.2	5.8	5.7	5.8	5.8	5.8	5.7	5.7	5.5	5.5
Women, 20 years and over	5.0	5.6	5.1	5.2	5.0	5.5	5.7	5.7	5.8	5.8	5.5	5.8	5.8	5.9	6.0
Both sexes, 16–19 years	13.9	14.8	14.2	14.2	14.1	14.8	17.1	16.1	16.5	16.6	15.1	16.0	16.4	15.4	16.8
Black and other, total	11.3	13.2	11.9	11.7	11.9	12.6	13.6	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9
Men, 20 years and over	8.4	11.4	9.7	9.5	9.5	10.8	11.7	12.2	12.5	12.5	13.2	12.1	12.0	11.6	10.5
Women, 20 years and over	10.1	11.1	10.1	9.3	10.5	11.1	11.6	10.9	11.3	10.9	10.6	12.3	12.2	12.3	11.0
Both sexes, 16–19 years	33.5	35.8	34.4	36.9	33.7	31.8	35.3	34.8	35.9	37.6	37.8	37.4	36.6	37.5	36.5
Married men, spouse present	2.7	4.2	3.4	3.2	3.4	4.0	4.6	4.6	4.9	4.8	4.7	4.6	4.4	4.3	4.2
Married women, spouse present	5.1	5.8	5.3	5.4	5.4	5.7	6.1	6.0	6.1	6.0	5.7	6.0	5.9	5.8	6.2
Women who head families	8.3	9.1	9.0	8.5	8.6	9.0	8.3	8.5	8.8	9.0	9.0	10.2	9.9	10.4	10.5
Full-time workers	5.3	6.8	5.8	5.8	5.9	6.5	7.3	7.2	7.4	7.3	7.3	7.3	7.4	7.3	7.1
Part-time workers	8.7	8.7	8.7	8.8	8.4	8.8	9.0	8.8	8.8	8.7	8.7	9.1	8.6	8.2	9.2
Unemployed 15 weeks and over	1.2	1.7	1.3	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.2	2.2	2.2	2.3	2.2
Labor force time lost[1]	6.3	7.9	6.7	6.6	6.8	7.6	8.6	8.1	8.4	8.3	8.2	8.4	8.3	8.2	8.2
OCCUPATION															
White-collar workers	3.3	3.7	3.4	3.4	3.4	3.7	3.8	3.7	3.7	3.7	3.8	3.9	3.9	4.0	3.9
Professional and technical	2.4	2.5	2.3	2.3	2.3	2.4	2.6	2.5	2.4	2.4	2.5	2.6	2.5	2.6	2.8
Managers and administrators, except farm	1.9	2.4	1.9	2.2	2.4	2.6	2.6	2.5	2.6	2.5	2.4	2.5	2.4	2.5	2.4
Salesworkers	3.9	4.4	4.3	4.3	4.0	4.5	4.4	4.4	4.2	4.2	4.3	4.6	4.8	4.7	4.4
Clerical workers	4.6	5.3	4.8	4.7	4.8	5.1	5.3	5.2	5.4	5.4	5.4	5.6	5.6	5.8	5.7
Blue-collar workers	6.9	10.0	8.1	7.9	8.2	9.6	10.9	11.1	11.3	11.1	10.8	10.8	10.7	10.5	10.2
Craft and kindred workers	4.5	6.6	5.1	5.1	5.5	6.5	7.5	7.5	7.2	7.6	7.4	7.1	7.1	7.1	6.8
Operatives, except transport	8.4	12.2	10.0	9.3	9.4	11.6	13.7	13.4	14.4	13.3	13.0	13.2	13.0	12.9	12.1
Transport equipment operatives	5.4	8.8	6.9	6.8	6.9	8.4	8.7	10.0	10.0	9.8	10.4	10.6	10.6	8.8	9.1
Nonfarm laborers	10.8	14.6	12.7	12.5	13.3	14.1	14.9	15.7	15.8	16.1	15.2	15.3	15.0	14.8	15.0
Service workers	7.1	7.9	6.9	7.0	7.2	7.8	8.2	8.1	8.3	8.5	8.1	8.3	8.3	7.8	8.0
Farmworkers	3.8	4.4	4.5	3.9	4.2	4.8	4.7	4.5	4.6	5.5	4.3	4.4	4.0	4.0	5.0
INDUSTRY															
Nonagricultural private wage and salary workers[2]	5.7	7.4	6.2	6.2	6.3	7.0	8.0	8.0	8.0	8.0	7.8	7.8	7.8	7.7	7.5
Construction	10.2	14.2	11.4	10.9	13.1	14.5	16.6	15.6	15.8	17.3	15.9	14.6	14.8	13.8	13.3
Manufacturing	5.5	8.5	6.7	6.7	6.6	7.9	9.7	9.7	9.8	9.3	9.2	9.2	8.9	8.8	8.4
Durable goods	5.0	8.9	6.7	6.5	6.5	8.3	10.4	10.9	10.7	10.1	10.0	9.5	9.0	9.0	8.3
Nondurable goods	6.4	7.9	6.8	6.9	6.8	7.3	8.6	7.9	8.5	8.0	7.9	8.9	8.6	8.5	8.5
Transportation and public utilities	3.7	4.9	4.4	4.5	3.9	4.7	5.0	5.1	5.6	5.6	5.3	5.3	4.9	4.9	5.8
Wholesale and retail trade	6.5	7.4	6.6	6.6	6.4	7.0	7.5	7.7	7.6	7.7	7.7	7.8	8.2	8.3	7.6
Finance and service industries	4.9	5.3	4.7	4.7	4.9	5.1	5.6	5.6	5.6	5.5	5.4	5.6	5.5	5.5	5.8
Government workers	3.7	4.1	3.8	4.0	4.1	4.3	4.2	3.5	4.1	4.0	4.1	4.4	4.2	4.1	4.4
Agricultural wage and salary workers	9.1	10.8	10.4	9.5	10.3	11.7	11.4	10.4	10.8	13.2	10.7	11.1	10.1	10.6	11.5

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

[2] Includes mining, not shown separately.

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

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

Sex and age	Annual average		1980											1981
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Total, 16 years and over	5.8	7.1	6.2	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4
16 to 19 years	16.1	17.7	16.5	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0
16 to 17 years	18.1	20.0	19.0	18.8	17.7	19.0	21.2	20.0	20.5	22.1	20.1	20.9	21.4	19.9	21.0
18 to 19 years	14.6	16.1	14.3	15.2	15.1	14.5	17.4	17.6	17.4	16.5	16.0	16.7	16.5	16.4	17.5
20 to 24 years	9.0	11.5	10.2	9.9	9.9	11.3	12.5	12.1	12.1	12.0	12.0	12.3	12.1	11.7	11.9
25 years and over	3.9	5.0	4.3	4.2	4.4	5.0	5.3	5.4	5.5	5.4	5.4	5.4	5.4	5.3	5.3
25 to 54 years	4.1	5.4	4.5	4.6	4.8	5.3	5.6	5.8	5.9	5.9	5.9	5.9	5.9	5.8	5.7
55 years and over	3.0	3.3	3.4	2.8	2.8	3.3	3.4	3.3	3.4	3.4	3.4	3.4	3.3	3.5	3.5
Men, 16 years and over	5.1	6.9	5.8	5.6	5.8	6.7	7.5	7.5	7.6	7.6	7.6	7.4	7.4	7.2	7.2
16 to 19 years	15.8	18.2	16.3	16.0	15.2	16.3	19.4	19.1	19.5	19.9	18.9	19.8	19.8	19.0	20.3
16 to 17 years	17.9	20.4	19.0	18.2	16.5	18.8	21.5	21.5	20.9	23.7	21.2	21.8	22.3	20.5	23.0
18 to 19 years	14.2	16.7	14.2	14.5	14.5	14.4	17.6	18.8	18.4	17.1	16.9	18.1	17.8	17.8	18.5
20 to 24 years	8.6	12.5	10.5	10.3	10.7	12.3	13.5	13.4	13.2	13.6	13.5	13.8	13.2	12.5	12.8
25 years and over	3.3	4.7	3.8	3.7	4.0	4.7	5.1	5.2	5.4	5.3	5.4	5.1	5.1	4.9	4.9
25 to 54 years	3.4	5.1	3.9	3.9	4.3	4.9	5.4	5.6	5.8	5.7	6.0	5.6	5.6	5.4	5.2
55 years and over	2.9	3.3	3.4	2.8	2.8	3.3	3.4	3.6	3.6	3.6	3.5	3.3	3.3	3.3	3.4
Women, 16 years and over	6.8	7.4	6.9	6.9	6.9	7.2	7.6	7.4	7.7	7.6	7.2	7.7	7.7	7.7	7.7
16 to 19 years	16.4	17.2	16.6	17.4	17.2	16.5	18.3	17.3	17.7	17.6	16.6	17.0	17.2	16.5	17.5
16 to 17 years	18.3	19.5	19.1	19.4	19.2	19.3	20.9	18.3	20.1	20.2	18.8	19.8	20.3	19.3	18.7
18 to 19 years	15.0	15.6	14.5	16.1	15.8	14.8	17.2	16.3	16.2	15.9	15.1	15.1	15.1	14.8	16.4
20 to 24 years	9.6	10.3	9.8	9.4	9.0	10.1	11.3	10.6	10.9	10.2	10.2	10.6	10.8	10.8	10.8
25 years and over	4.8	5.5	4.9	5.0	5.1	5.4	5.5	5.5	5.7	5.7	5.4	5.9	5.8	5.9	5.8
25 to 54 years	5.2	5.9	5.3	5.4	5.5	5.8	6.0	6.0	6.1	6.2	5.9	6.4	6.2	6.3	6.3
55 years and over	3.2	3.2	3.3	2.9	2.9	3.3	3.3	2.9	3.1	3.1	3.3	3.4	3.4	3.9	3.6

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

[Numbers in thousands]

Reason for unemployment	1980												1981
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
NUMBER OF UNEMPLOYED													
Lost last job	3,038	2,979	3,102	3,581	4,164	4,468	4,364	4,319	4,387	4,240	4,229	4,226	3,847
On layoff	1,072	1,087	1,135	1,422	1,771	1,954	1,832	1,699	1,744	1,692	1,453	1,470	1,258
Other job losers	1,966	1,892	1,967	2,159	2,393	2,514	2,532	2,620	2,643	2,548	2,776	2,756	2,590
Left last job	807	831	804	905	930	887	866	890	855	870	897	813	907
Reentered labor force	1,808	1,797	1,812	1,909	1,975	1,834	1,868	1,883	1,844	2,013	1,896	1,869	2,039
Seeking first job	814	825	815	752	871	872	893	870	862	880	890	868	1,000
PERCENT DISTRIBUTION													
Total unemployed	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job losers	47.0	46.3	47.5	50.1	52.4	55.4	54.6	54.2	55.2	53.0	53.5	54.3	49.4
On layoff	16.6	16.9	17.4	19.9	22.3	24.2	22.9	21.3	21.9	21.1	18.4	18.9	16.1
Other job losers	30.4	29.4	30.1	30.2	30.1	31.2	31.7	32.9	33.3	31.8	35.1	35.4	33.2
Job leavers	12.5	12.9	12.3	12.7	11.7	11.0	10.8	11.2	10.8	10.9	11.3	10.5	11.6
Reentrants	28.0	27.9	27.7	26.7	24.9	22.8	23.4	23.6	23.2	25.2	24.0	24.0	26.2
New entrants	12.6	12.8	12.5	10.5	11.0	10.8	11.2	10.9	10.8	11.0	11.2	11.2	12.8
UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE													
Job losers	2.9	2.9	3.0	3.4	4.0	4.3	4.2	4.1	4.2	4.0	4.0	4.0	3.6
Job leavers	.8	.8	.8	.9	.9	.8	.8	.8	.8	.8	.9	.8	.9
Reentrants	1.7	1.7	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9
New entrants	.8	.8	.8	.7	.8	.8	.9	.8	.8	.8	.8	.8	.9

7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1980											1981
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Less than 5 weeks	2,869	3,208	3,163	3,049	3,005	3,258	3,714	3,281	3,317	3,255	3,042	3,186	3,108	3,115	3,259
5 to 14 weeks	1,892	2,411	1,994	2,134	2,207	2,373	2,589	2,812	2,649	2,533	2,586	2,500	2,524	2,217	2,264
15 weeks and over	1,202	1,829	1,319	1,299	1,391	1,599	1,686	1,777	1,935	2,150	2,295	2,292	2,329	2,378	2,358
15 to 26 weeks	684	1,028	776	794	796	931	980	1,024	1,093	1,239	1,366	1,256	1,213	1,231	1,079
27 weeks and over	518	802	543	505	595	668	706	753	842	911	929	1,036	1,116	1,147	1,279
Average (mean) duration, in weeks	10.9	11.9	10.6	10.7	11.0	11.2	10.6	11.7	11.8	12.5	13.0	13.3	13.6	13.5	14.4

NOTE: The monthly data in these tables have been revised to reflect seasonal experience through 1980.

EMPLOYMENT, HOURS, AND EARNINGS DATA FROM ESTABLISHMENT SURVEYS

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by 166,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

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

Definitions

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

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

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to eliminate the effects of price change. The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries. **Spendable earnings** are earnings from which estimated social security and Federal income taxes have been deducted. The Bureau of Labor Statistics computes spendable earnings from gross weekly earnings for only two illustrative cases: (1) a worker with no dependents and (2) a married worker with three dependents.

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

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

Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of June 1980 data, published in the August 1980 issue of the *Review.* Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Complete comparable historical unadjusted and seasonally adjusted data are published in a Supplement to Employment and Earnings (unadjusted data from April 1977 through March 1980 and seasonally adjusted data from January 1974 through March 1980) and in *Employment and Earnings, United States, 1909–78,* BLS Bulletin 1312–11 (for prior periods).

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

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

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

8. Employment by industry, 1950–79

[Nonagricultural payroll data, in thousands]

Year	Total	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale and retail trade	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government		
											Total	Federal	State and local
1950	45,197	901	2,364	15,241	4,034	9,386	2,635	6,751	1,883	5,357	6,026	1,928	4,098
1951	47,819	929	2,637	16,393	4,226	9,742	2,727	7,015	1,956	5,547	6,389	2,302	4,087
1952	48,793	898	2,668	16,632	4,248	10,004	2,812	7,192	2,035	5,699	6,609	2,420	4,188
1953	50,202	866	2,659	17,549	4,290	10,247	2,854	7,393	2,111	5,835	6,645	2,305	4,340
1954	48,990	791	2,646	16,314	4,084	10,235	2,867	7,368	2,200	5,969	6,751	2,188	4,563
1955	50,641	792	2,839	16,882	4,141	10,535	2,926	7,610	2,298	6,240	6,914	2,187	4,727
1956	52,369	822	3,039	17,243	4,244	10,858	3,018	7,840	2,389	6,497	7,278	2,209	5,069
1957	52,853	828	2,962	17,174	4,241	10,886	3,028	7,858	2,438	6,708	7,616	2,217	5,399
1958	51,324	751	2,817	15,945	3,976	10,750	2,980	7,770	2,481	6,765	7,839	2,191	5,648
1959[1]	53,268	732	3,004	16,675	4,011	11,127	3,082	8,045	2,549	7,087	8,083	2,233	5,850
1960	54,189	712	2,926	16,796	4,004	11,391	3,143	8,248	2,629	7,378	8,353	2,270	6,083
1961	53,999	672	2,859	16,326	3,903	11,337	3,133	8,204	2,688	7,620	8,594	2,279	6,315
1962	55,549	650	2,948	16,853	3,906	11,566	3,198	8,368	2,754	7,982	8,890	2,340	6,550
1963	56,653	635	3,010	16,995	3,903	11,778	3,248	8,530	2,830	8,277	9,225	2,358	6,868
1964	58,283	634	3,097	17,274	3,951	12,160	3,337	8,823	2,911	8,660	9,596	2,348	7,248
1965	60,765	632	3,232	18,062	4,036	12,716	3,466	9,250	2,977	9,036	10,074	2,378	7,696
1966	63,901	627	3,317	19,214	4,158	13,245	3,597	9,648	3,058	9,498	10,784	2,564	8,220
1967	65,803	613	3,248	19,447	4,268	13,606	3,689	9,917	3,185	10,045	11,391	2,719	8,672
1968	67,897	606	3,350	19,781	4,318	14,099	3,779	10,320	3,337	10,567	11,839	2,737	9,102
1969	70,384	619	3,575	20,167	4,442	14,705	3,907	10,798	3,512	11,169	12,195	2,758	9,437
1970	70,880	623	3,588	19,367	4,515	15,040	3,993	11,047	3,645	11,548	12,554	2,731	9,823
1971	71,214	609	3,704	18,623	4,476	15,352	4,001	11,351	3,772	11,797	12,881	2,696	10,185
1972	73,675	628	3,889	19,151	4,541	15,949	4,113	11,836	3,908	12,276	13,334	2,684	10,649
1973	76,790	642	4,097	20,154	4,656	16,607	4,277	12,329	4,046	12,857	13,732	2,663	11,068
1974	78,265	697	4,020	20,077	4,725	16,987	4,433	12,554	4,148	13,441	14,170	2,724	11,446
1975	76,945	752	3,525	18,323	4,542	17,060	4,415	12,645	4,165	13,892	14,686	2,748	11,937
1976	79,382	779	3,576	18,997	4,582	17,755	4,546	13,209	4,271	14,551	14,871	2,733	12,138
1977	82,471	813	3,851	19,682	4,713	18,516	4,708	13,808	4,467	15,303	15,127	2,727	12,399
1978	86,697	851	4,229	20,505	4,923	19,542	4,969	14,573	4,724	16,252	15,672	2,753	12,919
1979	89,886	960	4,483	21,062	5,141	20,269	5,204	15,066	4,974	17,078	15,920	2,773	13,147

[1]Data include Alaska and Hawaii beginning in 1959.

9. Employment by State

[Nonagricultural payroll data, in thousands]

State	Dec. 1979	Nov. 1980	Dec. 1980 P	State	Dec. 1979	Nov. 1980	Dec. 1980 P
Alabama	1,378.2	1,348.2	1,352.4	Montana [1]	285.3	282.8	282.0
Alaska	163.6	171.3	167.8	Nebraska [1]	641.3	633.2	632.3
Arizona	1,010.7	1,016.5	1,021.0	Nevada	394.7	405.0	400.8
Arkansas	757.8	755.0	755.4	New Hampshire	380.7	385.1	384.3
California	9,886.9	9,824.2	9,874.0	New Jersey	3,073.1	3,052.2	3,061.4
Colorado [1]	1,247.5	1,265.2	1,266.5	New Mexico	471.5	470.1	470.5
Connecticut	1,432.0	1,411.2	1,419.0	New York	7,271.6	7,216.0	7,223.0
Delaware	261.8	261.2	262.0	North Carolina	2,422.7	2,447.1	2,450.0
District of Columbia	624.1	617.0	620.0	North Dakota [1]	248.1	249.7	247.6
Florida	3,503.5	3,585.4	3,623.6	Ohio	4,534.3	4,453.9	4,445.5
Georgia	2,147.3	2,162.3	2,168.7	Oklahoma	1,122.1	1,151.1	1,155.0
Hawaii	407.4	405.1	407.9	Oregon [1]	...	1,036.2	1,027.0
Idaho	338.9	335.6	331.5	Pennsylvania	4,892.9	4,798.9	4,788.7
Illinois	4,866.6	4,798.2	4,796.5	Rhode Island	404.7	398.2	400.9
Indiana	2,219.9	2,244.6	2,239.4	South Carolina	1,198.7	1,188.7	1,191.9
Iowa [1]	1,145.4	1,100.8	1,097.6	South Dakota [1]	242.8	235.7	234.7
Kansas [1]	968.1	956.3	956.8	Tennessee	1,810.6	1,773.9	1,773.5
Kentucky	1,262.5	1,219.6	1,215.6	Texas	5,754.9	5,919.5	5,934.3
Louisiana	1,525.8	1,576.2	1,581.6	Utah [1]	558.0	564.8	564.2
Maine	418.7	417.8	415.9	Vermont	202.7	202.9	203.8
Maryland	1,717.5	1,706.7	1,715.2	Virginia	2,128.1	2,142.8	2,148.2
Massachusetts	2,658.9	2,694.8	2,696.9	Washington	1,616.0	1,615.4	1,613.9
Michigan	3,626.3	3,534.9	...	West Virginia	659.7	636.3	635.0
Minnesota	1,807.4	1,790.2	1,784.9	Wisconsin	2,011.7	2,010.4	2,005.0
Mississippi	850.3	831.9	833.2	Wyoming	205.0	207.9	208.7
Missouri	2,014.0	1,985.7	1,980.4	Virgin Islands	36.6	36.1	36.7

[1] Revised series; not strictly comparable with previously published data.

10. Employment by industry division and major manufacturing group

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1980												1981
	1978	1979	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. P	Jan. P
TOTAL	86,697	89,886	89,630	89,781	90,316	90,761	90,849	91,049	89,820	90,072	90,729	91,332	91,693	91,839	90,089
MINING	851	960	982	987	996	1,006	1,024	1,049	1,030	1,029	1,035	1,039	1,055	1,062	1,065
CONSTRUCTION	4,229	4,483	4,194	4,109	4,150	4,311	4,471	4,611	4,633	4,712	4,690	4,700	4,618	4,430	4,082
MANUFACTURING	20,505	21,062	20,777	20,730	20,793	20,533	20,250	20,201	19,754	20,044	20,269	20,302	20,368	20,332	20,164
Production workers	14,734	15,085	14,738	14,678	14,727	14,466	14,172	14,093	13,657	13,947	14,182	14,204	14,260	14,215	14,076
Durable goods	12,274	12,772	12,600	12,599	12,647	12,414	12,150	12,065	11,774	11,827	12,028	12,100	12,195	12,195	12,123
Production workers	8,805	9,120	8,885	8,869	8,909	8,672	8,409	8,307	8,025	8,075	8,281	8,343	8,430	8,421	8,358
Lumber and wood products	754.7	766.1	717.4	718.9	716.9	678.4	654.8	668.0	666.8	683.0	689.2	686.9	682.8	676.5	666.4
Furniture and fixtures	494.1	499.3	498.0	494.6	494.1	488.7	469.1	460.8	438.1	454.6	466.6	470.3	473.8	476.4	472.0
Stone, clay, and glass products	698.2	709.7	678.2	674.7	679.0	675.5	668.1	666.2	656.0	663.2	667.4	665.5	667.2	655.1	638.6
Primary metal industries	1,214.9	1,250.2	1,207.2	1,205.1	1,203.7	1,193.8	1,149.8	1,112.9	1,055.5	1,059.6	1,081.8	1,093.1	1,111.9	1,120.9	1,116.6
Fabricated metal products	1,672.6	1,723.7	1,696.8	1,699.4	1,703.8	1,671.4	1,619.8	1,598.6	1,538.4	1,567.6	1,594.5	1,604.6	1,615.6	1,615.3	1,604.2
Machinery, except electrical	2,325.5	2,481.6	2,538.5	2,536.5	2,539.9	2,523.5	2,509.3	2,486.1	2,440.2	2,417.8	2,449.6	2,456.7	2,475.2	2,501.7	2,505.2
Electric and electronic equipment	2,006.1	2,124.3	2,162.9	2,157.7	2,167.7	2,156.2	2,120.2	2,102.2	2,066.5	2,080.7	2,103.5	2,119.3	2,134.9	2,144.4	2,142.7
Transportation equipment	2,002.8	2,082.8	1,975.8	1,983.1	2,005.6	1,891.1	1,835.1	1,847.0	1,810.2	1,785.4	1,857.9	1,885.7	1,912.2	1,891.9	1,872.4
Instruments and related products	653.1	688.9	697.7	700.5	703.6	702.2	699.4	702.9	698.3	697.8	695.5	695.9	700.6	704.0	703.2
Miscellaneous manufacturing	451.5	445.6	427.7	428.8	432.9	433.0	424.6	420.1	404.0	417.6	422.2	422.1	421.2	408.8	401.9
Nondurable goods	8,231	8,290	8,177	8,131	8,146	8,119	8,100	8,136	7,980	8,217	8,241	8,202	8,173	8,137	8,041
Production workers	5,929	5,965	5,853	5,809	5,818	5,794	5,763	5,786	5,632	5,872	5,901	5,861	5,830	5,794	5,718
Food and kindred products	1,724.1	1,728.1	1,659.9	1,644.1	1,641.1	1,626.2	1,638.5	1,676.8	1,709.5	1,795.3	1,790.5	1,738.8	1,696.6	1,668.0	1,619.2
Tobacco manufactures	70.6	69.9	69.1	67.1	64.4	62.9	62.7	64.6	63.9	71.3	75.5	76.4	75.6	73.6	70.4
Textile mill products	899.1	888.5	884.0	884.6	886.9	882.1	870.6	853.2	820.6	854.1	854.7	856.8	859.4	859.6	856.2
Apparel and other textile products	1,332.3	1,312.5	1,282.0	1,305.8	1,318.4	1,304.2	1,299.0	1,310.5	1,236.9	1,299.9	1,309.2	1,307.5	1,302.3	1,283.2	1,262.8
Paper and allied products	698.7	706.7	703.5	701.9	701.8	698.8	692.4	695.0	682.3	688.7	688.6	690.7	691.6	693.0	690.4
Printing and publishing	1,192.0	1,239.5	1,266.3	1,270.4	1,272.1	1,270.4	1,267.8	1,271.3	1,264.5	1,264.3	1,267.9	1,272.2	1,281.0	1,294.0	1,281.5
Chemicals and allied products	1,095.5	1,110.7	1,113.1	1,112.1	1,118.1	1,120.6	1,119.5	1,122.2	1,112.0	1,108.4	1,106.3	1,104.9	1,106.1	1,108.6	1,105.7
Petroleum and coal products	207.7	210.0	208.6	155.9	153.1	173.6	203.4	209.1	212.0	212.4	210.9	210.4	210.2	207.5	210.0
Rubber and miscellaneous plastics products	754.5	775.6	750.3	746.3	746.5	737.2	702.4	688.5	659.3	680.4	695.8	703.4	708.3	711.1	708.5
Leather and leather products	256.8	248.0	240.3	242.6	243.4	243.3	243.2	244.7	218.9	242.6	241.1	240.6	241.5	238.7	236.7
TRANSPORTATION AND PUBLIC UTILITIES	4,923	5,141	5,136	5,130	5,143	5,147	5,167	5,185	5,145	5,144	5,170	5,178	5,158	5,156	5,082
WHOLESALE AND RETAIL TRADE	19,542	20,269	20,325	20,155	20,226	20,373	20,497	20,562	20,506	20,579	20,692	20,708	20,937	21,314	20,550
WHOLESALE TRADE	4,969	5,204	5,241	5,250	5,269	5,265	5,263	5,287	5,278	5,284	5,291	5,313	5,313	5,315	5,273
RETAIL TRADE	14,573	15,066	15,084	14,905	14,957	15,108	15,234	15,275	15,228	15,295	15,401	15,395	15,624	15,999	15,277
FINANCE, INSURANCE, AND REAL ESTATE	4,724	4,974	5,052	5,061	5,085	5,104	5,137	5,201	5,229	5,232	5,194	5,204	5,215	5,227	5,223
SERVICES	16,252	17,078	17,135	17,317	17,478	17,636	17,747	17,846	17,973	17,966	17,915	17,949	17,951	17,962	17,779
GOVERNMENT	15,672	15,920	16,029	16,292	16,445	16,651	16,556	16,394	15,550	15,366	15,764	16,252	16,391	16,356	16,144
Federal	2,753	2,773	2,763	2,803	2,869	3,103	2,963	2,995	2,949	2,862	2,754	2,774	2,776	2,789	2,772
State and local	12,919	13,147	13,266	13,489	13,576	13,548	13,593	13,399	12,601	12,504	13,010	13,478	13,615	13,567	13,372

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

[Nonagricultural payroll data, in thousands]

Industry division and group	1980												1981
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. [P]	Jan. [P]
TOTAL	91,031	91,186	91,144	90,951	90,468	90,047	89,867	90,142	90,384	90,710	90,961	91,116	91,490
MINING	999	1,007	1,009	1,012	1,023	1,029	1,013	1,013	1,028	1,037	1,054	1,069	1,082
CONSTRUCTION	4,745	4,659	4,529	4,467	4,436	4,379	4,322	4,359	4,404	4,442	4,475	4,507	4,612
MANUFACTURING	20,971	20,957	20,938	20,642	20,286	20,014	19,828	19,940	20,044	20,157	20,282	20,328	20,357
Production workers	14,911	14,871	14,850	14,550	14,186	13,931	13,759	13,872	13,972	14,065	14,179	14,207	14,247
Durable goods	12,681	12,715	12,707	12,442	12,140	11,947	11,819	11,860	11,955	12,043	12,146	12,169	12,202
Production workers	8,953	8,967	8,961	8,686	8,386	8,205	8,084	8,123	8,212	8,288	8,381	8,391	8,425
Lumber and wood products	743	745	737	689	654	648	650	662	674	677	683	685	691
Furniture and fixtures	497	495	494	491	472	461	449	456	464	466	469	472	472
Stone, clay, and glass products	705	705	700	680	663	647	641	648	655	656	661	661	665
Primary metal industries	1,215	1,214	1,209	1,193	1,144	1,096	1,049	1,059	1,074	1,096	1,119	1,129	1,124
Fabricated metal products	1,707	1,711	1,711	1,678	1,620	1,584	1,551	1,569	1,587	1,595	1,606	1,609	1,614
Machinery, except electrical	2,532	2,529	2,530	2,518	2,517	2,476	2,448	2,437	2,452	2,469	2,475	2,489	2,498
Electric and electronic equipment	2,169	2,168	2,176	2,167	2,127	2,094	2,079	2,083	2,091	2,107	2,120	2,136	2,149
Transportation equipment	1,970	2,006	2,006	1,885	1,819	1,831	1,839	1,840	1,851	1,873	1,901	1,871	1,867
Instruments and related products	699	702	705	703	700	696	698	697	697	697	701	703	705
Miscellaneous manufacturing	444	440	439	438	424	414	415	409	410	407	411	414	417
Nondurable goods	8,290	8,242	8,231	8,200	8,146	8,067	8,009	8,080	8,089	8,114	8,136	8,159	8,155
Production workers	5,958	5,904	5,889	5,864	5,800	5,726	5,675	5,749	5,760	5,777	5,798	5,816	5,822
Food and kindred products	1,716	1,713	1,704	1,690	1,691	1,677	1,683	1,690	1,672	1,682	1,686	1,685	1,674
Tobacco manufactures	67	68	68	69	70	71	69	67	68	69	71	69	69
Textile mill products	888	888	888	884	869	843	833	851	851	856	856	859	861
Apparel and other textile products	1,305	1,313	1,316	1,302	1,291	1,287	1,276	1,296	1,299	1,292	1,291	1,292	1,286
Paper and allied products	710	709	708	702	692	685	680	682	686	690	692	694	697
Printing and publishing	1,269	1,273	1,274	1,272	1,268	1,269	1,266	1,266	1,269	1,272	1,278	1,286	1,284
Chemicals and allied products	1,121	1,121	1,123	1,123	1,120	1,112	1,103	1,100	1,104	1,105	1,108	1,113	1,115
Petroleum and coal products	214	161	157	175	203	205	207	208	208	209	209	210	215
Rubber and miscellaneous plastics products	755	751	749	740	703	681	663	680	692	699	705	712	713
Leather and leather products	245	245	244	243	239	237	229	240	240	240	240	239	241
TRANSPORTATION AND PUBLIC UTILITIES	5,202	5,198	5,202	5,178	5,167	5,134	5,114	5,129	5,124	5,147	5,132	5,130	5,149
WHOLESALE AND RETAIL TRADE	20,529	20,637	20,610	20,531	20,487	20,459	20,506	20,589	20,620	20,641	20,660	20,638	20,757
WHOLESALE TRADE	5,278	5,302	5,301	5,286	5,268	5,245	5,247	5,263	5,280	5,292	5,297	5,299	5,310
RETAIL TRADE	15,251	15,335	15,309	15,245	15,219	15,214	15,259	15,326	15,340	15,349	15,363	15,339	15,447
FINANCE, INSURANCE, AND REAL ESTATE	5,091	5,101	5,115	5,119	5,137	5,150	5,167	5,180	5,194	5,214	5,225	5,243	5,265
SERVICES	17,462	17,540	17,580	17,618	17,659	17,652	17,760	17,788	17,861	17,913	17,969	18,052	18,123
GOVERNMENT	16,032	16,087	16,161	16,384	16,273	16,230	16,157	16,144	16,109	16,159	16,164	16,149	16,145
Federal	2,791	2,826	2,886	3,115	2,960	2,951	2,893	2,828	2,765	2,788	2,790	2,796	2,800
State and local	13,241	13,261	13,275	13,269	13,313	13,279	13,264	13,316	13,344	13,371	13,374	13,353	13,345

12. Labor turnover rates in manufacturing, 1977 to date

[Per 100 employees]

Year	Annual average	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Total accessions												
1977	4.0	3.7	3.7	4.0	3.8	4.6	4.9	4.3	5.3	4.6	3.9	3.1	2.4
1978	4.1	3.8	3.2	3.8	4.0	4.7	4.9	4.4	5.4	4.9	4.3	3.3	2.4
1979	4.0	4.0	3.4	3.8	3.9	4.7	4.8	4.3	5.0	4.5	4.1	3.0	2.2
1980	...	3.8	3.3	3.5	3.1	3.4	3.9	3.8	4.5	4.3	3.6	2.7	P2.2
	New hires												
1977	2.8	2.2	2.1	2.6	2.7	3.5	3.7	3.0	4.0	3.5	3.0	2.2	1.6
1978	3.1	2.5	2.2	2.7	2.9	3.6	3.9	3.3	4.2	3.9	3.5	2.6	1.7
1979	2.9	2.8	2.5	2.8	2.9	3.6	3.8	3.1	3.7	3.4	3.1	2.2	1.5
1980	...	2.4	2.2	2.3	2.1	2.1	2.4	2.1	2.5	2.6	2.2	1.6	P1.2
	Recalls												
1977	.9	1.2	1.3	1.1	.9	.8	.8	.9	1.0	.8	.6	.6	.6
1978	.7	1.0	.7	.8	.8	.8	.7	.8	.9	.7	.6	.5	.5
1979	.7	.9	.7	.7	.7	.8	.7	.9	.9	.8	.7	.5	.5
1980	...	1.1	.9	.9	.8	1.0	1.2	1.4	1.7	1.4	1.1	.9	P.8
	Total separations												
1977	3.8	3.9	3.4	3.4	3.4	3.5	3.5	4.3	5.1	4.9	3.8	3.4	3.4
1978	3.9	3.6	3.1	3.5	3.6	3.7	3.8	4.1	5.3	4.9	4.1	3.5	3.4
1979	4.0	3.8	3.2	3.6	3.7	3.8	3.9	4.3	5.7	4.7	4.2	3.8	3.5
1980	...	4.1	3.5	3.7	4.7	4.8	4.4	4.2	4.8	4.1	3.7	3.0	P3.2
	Quits												
1977	1.8	1.4	1.3	1.6	1.7	1.9	1.9	1.9	3.1	2.8	1.9	1.5	1.2
1978	2.1	1.5	1.4	1.8	2.0	2.1	2.2	2.1	3.5	3.1	2.3	1.7	1.3
1979	2.0	1.8	1.6	1.9	2.0	2.1	2.1	2.0	3.3	2.7	2.1	1.6	1.1
1980	...	1.6	1.5	1.6	1.5	1.5	1.4	1.4	2.2	1.9	1.4	1.1	P.9
	Layoffs												
1977	1.1	1.7	1.4	1.0	.9	.8	.8	1.5	1.0	1.1	1.1	1.1	1.5
1978	.9	1.2	.9	.9	.8	.7	.7	1.1	.8	.8	.9	1.0	1.4
1979	1.1	1.1	.8	.8	.9	.7	.9	1.4	1.3	1.1	1.2	1.5	1.7
1980	...	1.6	1.2	1.3	2.3	2.5	2.2	2.0	1.7	1.4	1.5	1.3	P1.7

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

[Per 100 employees]

Major industry group	Accession rates									Separation rates								
	Total			New hires			Recalls			Total			Quits			Layoffs		
	Dec. 1979	Nov. 1980	Dec. 1980 P	Dec. 1979	Nov. 1980	Dec. 1980 P	Dec. 1979	Nov. 1980	Dec. 1980 P	Dec. 1979	Nov. 1980	Dec. 1980 P	Dec. 1979	Nov. 1980	Dec. 1980 P	Dec. 1979	Nov. 1980	Dec. 1980 P
MANUFACTURING	2.2	2.7	2.2	1.5	1.6	1.2	0.5	0.9	0.8	3.5	3.0	3.2	1.1	1.1	0.9	1.7	1.3	1.7
Seasonally adjusted	3.9	3.6	3.6	2.9	2.1	2.2	...	...	...	4.0	3.3	3.4	1.9	1.4	1.5	1.2	1.2	1.2
Durable goods	1.9	2.6	2.0	1.3	1.4	1.0	.5	.9	.7	3.2	2.6	2.8	.9	.8	.7	1.6	1.1	1.4
Lumber and wood products	2.4	3.3	2.8	1.7	2.4	1.6	.6	.8	1.1	6.0	4.4	6.0	1.8	1.7	2.4	3.3	1.9	2.8
Furniture and fixtures	2.5	3.1	2.8	1.8	2.2	1.7	.6	.7	1.1	3.5	2.9	3.7	1.6	1.4	1.3	1.2	.9	1.7
Stone, clay, and glass products	1.9	2.4	2.0	1.2	1.4	1.1	.5	.8	.8	4.7	3.6	4.7	1.1	.9	.7	3.0	2.0	3.2
Primary metal industries	1.9	3.3	2.2	.7	.7	.5	.9	2.3	1.4	3.2	2.1	2.3	.5	.4	.3	2.0	1.2	1.5
Fabricated metal products	2.2	2.7	1.9	1.6	1.5	1.0	.5	1.0	.7	3.4	3.2	2.8	1.1	1.0	.7	1.6	1.6	1.6
Machinery, except electrical	1.8	2.1	1.6	1.3	1.2	.9	.3	.6	.5	1.9	1.8	1.7	.7	.7	.5	.6	.6	.6
Electric and electronic equipment	2.0	2.4	2.0	1.4	1.4	1.1	.3	.6	.5	2.2	2.2	2.2	.9	.8	.7	.7	.7	.8
Transportation equipment	1.6	2.8	...	.7	1.1	...	.6	1.3	...	3.6	2.3	...	.5	.6	...	2.4	1.1	...
Instruments and related products	1.8	1.8	1.5	1.5	1.4	1.1	.1	.2	.2	1.9	1.6	1.4	.9	.8	.7	1.5	.4	.2
Miscellaneous manufacturing	2.3	3.3	2.7	1.7	2.3	1.6	.5	.8	.9	6.6	5.5	5.5	1.4	1.5	1.1	4.5	3.1	3.6
Nondurable goods	2.6	3.0	2.5	1.8	2.0	1.5	.7	.8	.9	4.0	3.7	3.8	1.5	1.4	1.1	1.9	1.7	2.1
Food and kindred products	3.4	3.9	3.5	2.3	2.4	1.8	1.0	1.3	1.5	6.2	6.0	6.0	2.0	1.9	1.4	3.4	3.3	3.9
Tobacco manufacturers	4.7	3.1	...	1.4	.9	...	1.0	1.8	...	3.3	5.4	...	.6	.6	...	2.2	4.1	...
Textile mill products	2.4	2.7	2.0	1.8	2.0	1.4	.3	.4	.4	3.4	3.1	2.7	1.6	1.5	1.1	1.1	.8	1.0
Apparel and other products	3.1	4.0	3.1	1.8	2.4	1.5	1.1	1.4	1.5	5.4	5.1	5.4	1.8	2.0	1.5	3.0	2.4	3.4
Paper and allied products	1.7	2.0	1.7	1.0	1.2	.9	.5	.6	.6	2.6	2.4	1.9	.7	.7	.5	1.3	1.2	.9
Printing and publishing	2.7	2.8	2.5	2.1	2.2	1.8	.4	.6	.5	2.8	2.6	2.9	1.6	1.4	1.4	.7	.6	1.0
Chemicals and allied products	1.1	1.2	1.2	.8	.8	.8	.2	.2	.2	1.3	1.2	1.5	.5	.4	.5	.4	.4	.5
Petroleum and coal products	1.2	1.5	1.2	1.0	1.3	1.1	.1	.1	.1	2.1	1.9	1.9	.6	.5	.4	1.1	.9	1.0
Rubber and miscellaneous plastics products	2.7	3.3	2.5	1.6	2.0	1.3	.8	.9	1.0	4.5	3.3	3.4	1.6	1.4	1.0	2.1	1.2	1.7
Leather and leather products	3.8	4.2	3.4	2.6	3.0	2.4	1.0	1.0	.9	6.0	5.8	7.2	2.4	2.4	1.8	2.8	2.7	4.6

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

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

Year	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings
	Total private			Mining			Construction			Manufacturing		
1949	$50.24	39.4	$1.275	$62.33	36.3	$1.717	$67.56	37.7	$1.792	$53.88	39.1	$1.378
1950	53.13	39.8	1.335	67.16	37.9	1.772	69.68	37.4	1.863	58.32	40.5	1.440
1951	57.86	39.9	1.45	74.11	38.4	1.93	76.96	38.1	2.02	63.34	40.6	1.56
1952	60.65	39.9	1.52	77.59	38.6	2.01	82.86	38.9	2.13	66.75	40.7	1.64
1953	63.76	39.6	1.61	83.03	38.8	2.14	86.41	37.9	2.28	70.47	40.5	1.74
1954	64.52	39.1	1.65	82.60	38.6	2.14	88.91	37.2	2.39	70.49	39.6	1.78
1955	67.72	39.6	1.71	89.54	40.7	2.20	90.90	37.1	2.45	75.30	40.7	1.85
1956	70.74	39.3	1.80	95.06	40.8	2.33	96.38	37.5	2.57	78.78	40.4	1.95
1957	73.33	38.8	1.89	98.25	40.1	2.45	100.27	37.0	2.71	81.19	39.8	2.04
1958	75.08	38.5	1.95	96.08	38.9	2.47	103.78	36.8	2.82	82.32	39.2	2.10
1959[1]	78.78	39.0	2.02	103.68	40.5	2.56	108.41	37.0	2.93	88.26	40.3	2.19
1960	80.67	38.6	2.09	105.04	40.4	2.60	112.67	36.7	3.07	89.72	39.7	2.26
1961	82.60	38.6	2.14	106.92	40.5	2.64	118.08	36.9	3.20	92.34	39.8	2.32
1962	85.91	38.7	2.22	110.70	41.0	2.70	122.47	37.0	3.31	96.56	40.4	2.39
1963	88.46	38.8	2.28	114.40	41.6	2.75	127.19	37.3	3.41	99.23	40.5	2.45
1964	91.33	38.7	2.36	117.74	41.9	2.81	132.06	37.2	3.55	102.97	40.7	2.53
1965	95.45	38.8	2.46	123.52	42.3	2.92	138.38	37.4	3.70	107.53	41.2	2.61
1966	98.82	38.6	2.56	130.24	42.7	3.05	146.26	37.6	3.89	112.19	41.4	2.71
1967	101.84	38.0	2.68	135.89	42.6	3.19	154.95	37.7	4.11	114.49	40.6	2.82
1968	107.73	37.8	2.85	142.71	42.6	3.35	164.49	37.3	4.41	122.51	40.7	3.01
1969	114.61	37.7	3.04	154.80	43.0	3.60	181.54	37.9	4.79	129.51	40.6	3.19
1970	119.83	37.1	3.23	164.40	42.7	3.85	195.45	37.3	5.24	133.33	39.8	3.35
1971	127.31	36.9	3.45	172.14	42.4	4.06	211.67	37.2	5.69	142.44	39.9	3.57
1972	136.90	37.0	3.70	189.14	42.6	4.44	221.19	36.5	6.06	154.71	40.5	3.82
1973	145.39	36.9	3.94	201.40	42.4	4.75	235.89	36.8	6.41	166.46	40.7	4.09
1974	154.76	36.5	4.24	219.14	41.9	5.23	249.25	36.6	6.81	176.80	40.0	4.42
1975	163.53	36.1	4.53	249.31	41.9	5.95	266.08	36.4	7.31	190.79	39.5	4.83
1976	175.45	36.1	4.86	273.90	42.4	6.46	283.73	36.8	7.71	209.32	40.1	5.22
1977	189.00	36.0	5.25	301.20	43.4	6.94	295.65	36.5	8.10	228.90	40.3	5.68
1978	203.70	35.8	5.69	332.88	43.4	7.67	318.69	36.8	8.66	249.27	40.4	6.17
1979	219.30	35.6	6.16	365.50	43.0	8.50	342.99	37.0	9.27	268.94	40.2	6.69
	Transportation and public utilities			Wholesale and retail trade			Finance, insurance, and real estate			Services		
1949	.....	.....	.....	$42.93	40.5	$1.060	$47.63	37.8	$1.260	.....	.....	.....
1950	.....	.....	.....	44.55	40.5	1.100	50.52	37.7	1.340	.....	.....	.....
1951	.....	.....	.....	47.79	40.5	1.18	54.67	37.7	1.45	.....	.....	.....
1952	.....	.....	.....	49.20	40.0	1.23	57.08	37.8	1.51	.....	.....	.....
1953	.....	.....	.....	51.35	39.5	1.30	59.57	37.7	1.58	.....	.....	.....
1954	.....	.....	.....	53.33	39.5	1.35	62.04	37.6	1.65	.....	.....	.....
1955	.....	.....	.....	55.16	39.4	1.40	63.92	37.6	1.70	.....	.....	.....
1956	.....	.....	.....	57.48	39.1	1.47	65.68	36.9	1.78	.....	.....	.....
1957	.....	.....	.....	59.60	38.7	1.54	67.53	36.7	1.84	.....	.....	.....
1958	.....	.....	.....	61.76	38.6	1.60	70.12	37.1	1.89	.....	.....	.....
1959[1]	.....	.....	.....	64.41	38.8	1.66	72.74	37.3	1.95	.....	.....	.....
1960	.....	.....	.....	66.01	38.6	1.71	75.14	37.2	2.02	.....	.....	.....
1961	.....	.....	.....	67.41	38.3	1.76	77.12	36.9	2.09	.....	.....	.....
1962	.....	.....	.....	69.91	38.2	1.83	80.94	37.3	2.17	.....	.....	.....
1963	.....	.....	.....	72.01	38.1	1.89	84.38	37.5	2.25	.....	.....	.....
1964	$118.78	41.1	$2.89	74.66	37.9	1.97	85.79	37.3	2.30	$70.03	36.1	$1.94
1965	125.14	41.3	3.03	76.91	37.7	2.04	88.91	37.2	2.39	73.60	35.9	2.05
1966	128.13	41.2	3.11	79.39	37.1	2.14	92.13	37.3	2.47	77.04	35.5	2.17
1967	130.82	40.5	3.23	82.35	36.6	2.25	95.72	37.1	2.58	80.38	35.1	2.29
1968	138.85	40.6	3.42	87.00	36.1	2.41	101.75	37.0	2.75	83.97	34.7	2.42
1969	147.74	40.7	3.63	91.39	35.7	2.56	108.70	37.1	2.93	90.57	34.7	2.61
1970	155.93	40.5	3.85	96.02	35.3	2.72	112.67	36.7	3.07	96.66	34.4	2.81
1971	168.82	40.1	4.21	101.09	35.1	2.88	117.85	36.6	3.22	103.06	33.9	3.04
1972	187.86	40.4	4.65	106.45	34.9	3.05	122.98	36.6	3.36	110.85	33.9	3.27
1973	203.31	40.5	5.02	111.76	34.6	3.23	129.20	36.6	3.53	117.29	33.8	3.47
1974	217.48	40.2	5.41	119.02	34.2	3.48	137.61	36.5	3.77	126.00	33.6	3.75
1975	233.44	39.7	5.88	126.45	33.9	3.73	148.19	36.5	4.06	134.67	33.5	4.02
1976	256.71	39.8	6.45	133.79	33.7	3.97	155.43	36.4	4.27	143.52	33.3	4.31
1977	278.90	39.9	6.99	142.52	33.3	4.28	165.26	36.4	4.54	153.45	33.0	4.65
1978	302.80	40.0	7.57	153.64	32.9	4.67	178.00	36.4	4.89	163.67	32.8	4.99
1979	325.98	39.9	8.17	164.96	32.6	5.06	190.77	36.2	5.27	175.27	32.7	5.36

[1] Data include Alaska and Hawaii beginning in 1959.

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

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

Industry division and group	Annual average		1980												1981
	1978	1979	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. p	Jan. p
TOTAL PRIVATE	35.8	35.6	35.1	35.1	35.2	35.0	35.0	35.3	35.3	35.5	35.3	35.3	35.3	35.6	35.0
MINING	43.4	43.0	43.4	43.2	43.4	42.8	42.7	43.2	41.9	43.1	43.5	43.5	43.5	44.0	43.4
CONSTRUCTION	36.8	37.0	35.3	35.7	36.2	36.7	36.9	37.9	37.7	37.3	37.9	37.9	36.8	37.2	36.3
MANUFACTURING	40.4	40.2	39.8	39.8	39.8	39.4	39.3	39.4	38.8	39.3	39.7	39.8	40.2	40.9	39.9
Overtime hours	3.6	3.3	3.0	2.9	3.0	2.7	2.5	2.5	2.4	2.7	3.0	2.9	3.1	3.3	2.9
Durable goods	41.1	40.8	40.3	40.3	40.3	39.9	39.7	39.8	39.1	39.7	40.2	40.3	40.7	41.6	40.5
Overtime hours	3.8	3.5	3.1	3.0	3.1	2.7	2.5	2.4	2.3	2.6	2.9	2.9	3.1	3.4	2.9
Lumber and wood products	39.8	39.4	38.1	38.5	38.3	37.1	37.6	38.4	38.2	39.2	39.3	39.2	39.2	39.6	38.3
Furniture and fixtures	39.3	38.7	38.4	38.4	38.5	37.9	37.3	37.3	36.2	37.6	38.3	38.5	38.4	39.5	38.2
Stone, clay, and glass products	41.6	41.5	40.1	40.1	40.7	40.4	40.6	41.0	40.3	40.7	41.1	41.3	41.4	41.5	40.3
Primary metal industries	41.8	41.4	40.7	40.7	40.7	40.6	39.3	39.1	38.6	39.0	39.9	39.9	40.8	41.7	41.2
Fabricated metal products	41.0	40.7	40.6	40.4	40.6	40.2	39.9	40.1	39.2	40.0	40.5	40.5	40.9	41.7	40.6
Machinery except electrical	42.1	41.8	41.5	41.5	41.5	41.1	40.8	40.8	40.0	40.4	41.0	40.7	41.3	42.2	41.4
Electric and electronic equipment	40.3	40.3	40.2	40.2	40.0	39.6	39.3	39.4	38.5	39.2	39.7	39.9	40.4	41.1	40.1
Transportation equipment	42.2	41.1	40.0	40.4	40.4	39.8	39.9	39.9	39.5	40.0	40.7	41.1	41.7	43.4	41.3
Instruments and related products	40.9	40.8	41.0	40.8	40.6	40.4	40.3	40.5	39.6	39.9	40.1	40.3	40.9	41.3	40.7
Miscellaneous manufacturing	38.8	38.8	38.8	38.6	38.8	38.4	38.2	38.3	37.8	38.5	39.1	38.9	39.1	39.6	38.4
Nondurable goods	39.4	39.3	39.0	38.9	38.9	38.7	38.7	38.8	38.5	38.9	39.1	39.1	39.3	39.8	39.1
Overtime hours	3.2	3.1	2.9	2.8	2.9	2.7	2.5	2.5	2.6	2.9	3.0	2.9	3.0	3.1	2.9
Food and kindred products	39.7	39.9	39.5	39.1	39.0	38.9	39.7	39.6	39.9	40.3	40.3	39.7	40.1	40.3	40.0
Tobacco manufactures	38.1	38.0	37.3	36.9	37.7	38.2	38.7	38.3	36.5	36.8	38.2	40.1	40.0	38.4	38.9
Textile mill products	40.4	40.4	40.9	40.8	40.9	39.9	39.8	39.6	38.5	39.2	39.8	39.9	40.3	40.9	39.9
Apparel and other textile products	35.6	35.3	35.2	35.4	35.4	35.3	35.3	35.6	35.3	35.4	35.2	35.4	35.4	36.0	35.0
Paper and allied products	42.9	42.6	42.7	42.4	42.4	42.2	41.6	41.7	41.4	41.8	42.4	42.2	42.8	43.6	42.7
Printing and publishing	37.6	37.5	37.2	37.0	37.2	36.8	36.9	36.7	36.8	37.2	37.3	37.2	37.2	38.1	37.3
Chemicals and allied products	41.9	41.9	41.7	41.6	41.7	41.6	41.3	41.2	40.7	40.9	41.3	41.4	42.0	42.1	41.2
Petroleum and coal products	43.6	43.8	36.2	39.7	39.4	41.1	42.3	42.3	42.7	42.2	43.4	43.7	43.6	43.1	42.6
Rubber and miscellaneous plastics products	40.9	40.5	40.3	39.9	40.0	39.7	39.0	39.3	38.6	40.0	40.3	40.7	41.1	41.5	40.9
Leather and leather products	37.1	36.5	36.7	36.8	36.4	36.7	37.0	37.4	36.4	36.6	36.2	36.5	36.3	37.0	36.8
TRANSPORTATION AND PUBLIC UTILITIES	40.0	39.9	39.5	39.4	39.5	39.5	39.3	39.6	39.9	39.7	39.7	39.8	39.7	39.7	39.5
WHOLESALE AND RETAIL TRADE	32.9	32.6	31.9	31.9	32.0	31.8	31.9	32.3	32.5	32.7	32.1	32.1	32.0	32.5	31.7
WHOLESALE TRADE	38.8	38.8	38.5	38.4	38.4	38.4	38.5	38.2	38.2	38.4	38.5	38.7	38.6	38.9	38.5
RETAIL TRADE	31.0	30.6	29.8	29.8	29.9	29.7	29.9	30.4	30.7	30.9	30.1	30.0	30.0	30.5	29.6
FINANCE, INSURANCE, AND REAL ESTATE	36.4	36.2	36.2	36.3	36.3	36.2	36.1	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.1
SERVICES	32.8	32.7	32.5	32.5	32.5	32.4	32.3	32.8	33.1	33.1	32.5	32.6	32.6	32.6	32.3

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

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

Industry division and group	1980												1981
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[p]	Jan.[p]
TOTAL PRIVATE	35.6	35.5	35.4	35.3	35.1	35.0	34.9	35.1	35.2	35.3	35.4	35.4	35.5
MINING	43.4	43.2	43.4	42.8	42.7	43.2	41.9	43.1	43.5	43.5	43.5	44.0	43.4
CONSTRUCTION	37.3	37.1	36.6	36.7	36.8	37.1	36.8	36.5	37.4	37.0	37.2	37.2	38.4
MANUFACTURING	40.3	40.1	39.8	39.8	39.3	39.1	39.0	39.4	39.6	39.7	39.9	40.1	40.4
Overtime hours	3.2	3.0	3.1	3.0	2.6	2.4	2.5	2.7	2.7	2.8	2.9	3.1	3.1
Durable goods	40.8	40.6	40.3	40.3	39.7	39.5	39.4	39.9	40.1	40.1	40.5	40.7	41.0
Overtime hours	3.3	3.1	3.2	3.0	2.5	2.4	2.4	2.6	2.7	2.8	3.0	3.2	3.1
Lumber and wood products	39.4	39.1	38.7	37.3	37.5	37.6	38.1	38.9	38.8	38.7	39.3	39.4	39.6
Furniture and fixtures	39.2	39.0	38.5	38.5	37.6	37.0	36.6	37.4	38.0	38.0	38.0	38.5	39.0
Stone, clay, and glass products	41.4	41.2	40.9	40.6	40.3	40.4	40.2	40.3	40.9	40.9	41.1	41.2	41.5
Primary metal industries	40.8	40.8	40.7	40.6	39.2	38.8	38.6	39.2	39.7	40.1	40.9	41.5	41.3
Fabricated metal products	40.9	40.8	40.7	40.8	39.9	39.7	39.6	40.1	40.4	40.4	40.6	40.7	40.9
Machinery, except electrical	41.6	41.5	41.3	41.5	41.0	40.7	40.6	40.8	40.9	40.7	41.0	41.0	41.5
Electric and electronic equipment	40.5	40.3	40.0	39.9	39.5	39.2	39.0	39.4	39.5	39.9	40.0	40.3	40.4
Transportation equipment	40.9	40.8	40.4	40.5	39.7	39.5	39.6	40.9	40.6	40.8	41.4	41.6	42.3
Instruments and related products	41.4	40.9	40.4	40.7	40.3	40.4	40.1	40.1	40.1	40.2	40.5	40.6	41.1
Miscellaneous manufacturing	39.2	39.1	38.6	38.5	38.3	38.2	38.3	38.6	38.9	38.7	38.6	39.1	38.8
Nondurable goods	39.5	39.4	39.0	39.1	38.9	38.6	38.5	38.7	38.8	39.0	39.0	39.3	39.6
Overtime hours	3.1	2.9	3.0	3.0	2.6	2.5	2.6	2.8	2.7	2.8	2.9	3.0	3.1
Food and kindred products	39.8	39.7	39.3	39.6	39.9	39.6	39.7	39.8	39.7	39.6	39.8	39.8	40.3
Tobacco manufactures	38.5	37.9	37.7	38.2	38.2	37.3	38.5	37.3	37.5	39.5	38.9	37.5	40.1
Textile mill products	41.5	41.1	40.8	40.3	39.7	39.1	38.8	39.2	39.7	39.9	40.0	40.4	40.5
Apparel and other textile products	36.0	35.9	35.3	35.8	35.3	35.2	35.1	35.1	35.1	35.3	35.0	35.7	35.8
Paper and allied products	43.0	42.9	42.6	42.5	41.7	41.4	41.4	41.8	42.2	42.2	42.6	42.9	43.0
Printing and publishing	37.8	37.4	37.2	37.2	37.1	36.8	36.9	37.1	36.9	37.1	36.8	37.4	37.9
Chemicals and allied products	42.0	41.9	41.8	41.5	41.3	41.1	40.8	41.0	41.3	41.4	41.7	41.7	41.5
Petroleum and coal products	36.9	40.7	39.7	41.1	42.5	42.3	42.2	42.2	42.7	43.1	43.2	43.0	43.4
Rubber and miscellaneous plastics products	40.7	40.0	39.9	40.1	39.3	39.2	39.0	40.2	40.1	40.4	40.8	40.8	41.3
Leather and leather products	37.2	37.2	36.9	37.3	36.7	36.7	36.1	36.5	36.2	36.5	36.2	36.7	37.3
TRANSPORTATION AND PUBLIC UTILITIES	39.5	39.4	39.5	39.5	39.3	39.6	39.9	39.7	39.7	39.8	39.7	39.7	39.5
WHOLESALE AND RETAIL TRADE	32.6	32.4	32.3	32.0	32.1	31.9	31.8	32.0	32.1	32.2	32.2	32.1	32.3
WHOLESALE TRADE	38.9	38.8	38.5	38.5	38.6	38.0	38.0	38.2	38.5	38.5	38.6	38.7	38.8
RETAIL TRADE	30.6	30.4	30.3	30.0	30.1	30.0	29.8	30.1	30.1	30.2	30.2	30.0	30.3
FINANCE, INSURANCE, AND REAL ESTATE	36.2	36.3	36.3	36.2	36.1	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.1
SERVICES	32.7	32.7	32.7	32.6	32.5	32.6	32.6	32.6	32.5	32.6	32.7	32.6	32.5

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

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

Industry division and group	Annual average		1980												1981
	1978	1979	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[p]	Jan.[p]
TOTAL PRIVATE	$5.69	$6.16	$6.42	$6.46	$6.51	$6.53	$6.57	$6.61	$6.64	$6.68	$6.80	$6.86	$6.93	$6.93	$7.03
MINING	7.67	8.50	8.88	8.90	8.95	9.10	9.08	9.16	9.08	9.18	9.32	9.37	9.51	9.57	9.77
CONSTRUCTION	8.66	9.27	9.49	9.61	9.68	9.69	9.77	9.81	9.91	10.05	10.19	10.25	10.25	10.35	10.44
MANUFACTURING	6.17	6.69	6.96	7.00	7.06	7.09	7.13	7.20	7.29	7.30	7.42	7.49	7.59	7.69	7.73
Durable goods	6.58	7.13	7.39	7.46	7.54	7.56	7.60	7.69	7.77	7.78	7.93	8.02	8.13	8.24	8.26
Lumber and wood products	5.60	6.08	6.21	6.33	6.35	6.28	6.40	6.56	6.72	6.76	6.80	6.76	6.79	6.76	6.84
Furniture and fixtures	4.68	5.06	5.27	5.32	5.37	5.39	5.42	5.49	5.52	5.54	5.58	5.59	5.62	5.70	5.73
Stone, clay, and glass products	6.33	6.85	7.06	7.14	7.27	7.34	7.45	7.53	7.60	7.64	7.69	7.74	7.82	7.83	7.85
Primary metal industries	8.20	8.97	9.30	9.44	9.45	9.53	9.61	9.65	9.82	9.84	9.95	10.09	10.28	10.40	10.44
Fabricated metal products	6.35	6.84	7.09	7.14	7.24	7.27	7.32	7.42	7.42	7.48	7.62	7.68	7.75	7.85	7.87
Machinery, except electrical	6.78	7.32	7.66	7.69	7.76	7.81	7.91	7.97	8.05	8.07	8.28	8.36	8.44	8.54	8.58
Electric and electronic equipment	5.82	6.32	6.67	6.71	6.78	6.79	6.78	6.87	6.96	7.02	7.14	7.20	7.29	7.39	7.45
Transportation equipment	7.91	8.54	8.81	8.86	9.04	9.04	9.06	9.24	9.34	9.35	9.56	9.77	9.89	10.10	10.02
Instruments and related products	5.71	6.17	6.57	6.59	6.63	6.63	6.72	6.80	6.86	6.86	6.92	6.95	7.02	7.12	7.16
Miscellaneous manufacturing	4.69	5.03	5.28	5.30	5.34	5.37	5.40	5.42	5.46	5.46	5.51	5.55	5.60	5.72	5.81
Nondurable goods	5.53	6.00	6.28	6.27	6.30	6.36	6.42	6.48	6.60	6.62	6.69	6.72	6.80	6.86	6.93
Food and kindred products	5.80	6.27	6.61	6.64	6.68	6.75	6.82	6.84	6.89	6.90	6.93	6.95	7.09	7.12	7.21
Tobacco manufactures	6.13	6.65	7.08	7.36	7.57	7.79	7.64	7.97	8.06	7.74	7.42	7.56	7.74	8.05	8.51
Textile mill products	4.30	4.66	4.90	4.90	4.92	4.91	4.90	4.93	5.06	5.19	5.24	5.26	5.30	5.32	5.35
Apparel and other textile products	3.94	4.23	4.44	4.45	4.49	4.46	4.45	4.51	4.50	4.60	4.70	4.73	4.75	4.82	4.91
Paper and allied products	6.52	7.13	7.49	7.52	7.55	7.63	7.65	7.79	7.97	7.99	8.06	8.09	8.18	8.28	8.26
Printing and publishing	6.51	6.95	7.24	7.29	7.34	7.34	7.44	7.46	7.53	7.63	7.73	7.75	7.79	7.86	7.91
Chemicals and allied products	7.02	7.60	7.97	8.01	8.05	8.12	8.17	8.24	8.35	8.39	8.46	8.52	8.59	8.67	8.67
Petroleum and coal products	8.63	9.36	9.46	9.37	9.29	9.83	10.07	10.22	10.25	10.22	10.33	10.39	10.52	10.38	11.13
Rubber and miscellaneous plastics products	5.52	5.96	6.25	6.25	6.27	6.30	6.34	6.39	6.48	6.57	6.63	6.70	6.79	6.88	6.89
Leather and leather products	3.89	4.22	4.45	4.47	4.51	4.52	4.53	4.54	4.54	4.59	4.61	4.64	4.68	4.72	4.81
TRANSPORTATION AND PUBLIC UTILITIES	7.57	8.17	8.55	8.58	8.62	8.71	8.72	8.75	8.90	8.95	9.04	9.20	9.28	9.31	9.34
WHOLESALE AND RETAIL TRADE	4.67	5.06	5.34	5.36	5.40	5.40	5.42	5.43	5.48	5.48	5.56	5.59	5.64	5.60	5.79
WHOLESALE TRADE	5.88	6.39	6.72	6.77	6.83	6.87	6.89	6.95	6.99	7.01	7.08	7.10	7.20	7.24	7.35
RETAIL TRADE	4.20	4.53	4.78	4.78	4.81	4.80	4.82	4.83	4.88	4.89	4.95	4.98	5.02	4.97	5.16
FINANCE, INSURANCE, AND REAL ESTATE	4.89	5.27	5.53	5.60	5.68	5.68	5.70	5.77	5.77	5.82	5.87	5.91	6.01	6.00	6.12
SERVICES	4.99	5.36	5.65	5.70	5.75	5.75	5.79	5.81	5.79	5.81	5.93	6.00	6.10	6.10	6.20

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

[Seasonally adjusted data: 1967=100]

Industry	1980												1981	Dec. 1980 to Jan. 1981	Jan. 1980 to Jan. 1981
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.		
TOTAL PRIVATE (in current dollars)	240.3	242.4	245.2	246.2	248.3	250.9	252.1	254.0	255.4	257.9	260.9	261.6	264.3	1.0	10.0
Mining	277.0	278.5	280.9	283.7	284.2	286.3	285.3	288.9	290.4	294.4	298.7	302.0	306.8	1.6	10.8
Construction	225.8	229.8	232.2	233.0	234.2	235.3	236.7	239.0	239.3	241.6	243.0	245.3	248.1	1.1	9.9
Manufacturing	245.2	247.8	250.2	252.4	255.0	258.3	260.6	262.4	264.5	266.6	268.9	270.2	272.9	1.0	11.3
Transportation and public utilities	260.8	262.4	265.9	267.2	268.7	270.6	272.8	273.2	274.0	280.2	283.4	284.6	285.7	.4	9.5
Wholesale and retail trade	234.2	235.2	237.8	238.0	239.8	241.8	243.5	245.3	246.5	247.7	250.9	250.2	254.1	1.6	8.5
Finance, insurance, and real estate	218.4	221.1	225.7	224.9	226.3	230.2	229.0	232.7	233.1	234.8	239.3	238.2	240.9	1.1	10.3
Services	237.7	239.7	242.7	243.0	245.7	248.4	247.6	249.8	251.7	254.2	258.5	258.8	260.7	.7	9.7
TOTAL PRIVATE (in constant dollars)	102.7	102.2	102.0	101.4	101.4	101.5	102.0	102.0	101.5	101.5	101.7	100.8	...	...	...

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

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

Industry division and group	Annual average		1980												1981
	1978	1979	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. p	Jan. p
TOTAL PRIVATE	$203.70	$219.30	$225.34	$226.75	$229.15	$228.55	$229.95	$233.33	$234.39	$237.14	$240.04	$242.16	$244.63	$246.71	$246.05
MINING	332.88	365.50	385.39	384.48	388.43	389.48	387.72	395.71	380.45	395.66	405.42	407.60	413.69	421.08	424.02
CONSTRUCTION	318.69	342.99	335.00	343.08	350.42	355.62	360.51	371.80	373.61	374.87	386.20	388.48	377.20	385.02	378.97
MANUFACTURING	249.27	268.94	277.01	278.60	280.99	279.35	280.21	283.68	282.85	286.89	294.57	298.10	305.12	314.52	308.43
Durable goods	270.44	290.90	297.82	300.64	303.86	301.64	301.72	306.06	303.81	308.87	318.79	323.21	330.89	342.78	334.53
Lumber and wood products	222.88	239.55	236.60	243.71	243.21	232.99	240.64	251.90	256.70	264.99	267.24	264.99	266.17	267.70	261.97
Furniture and fixtures	183.92	195.82	202.37	204.29	206.75	204.28	202.17	204.78	199.82	208.30	213.71	215.22	215.81	225.15	218.89
Stone, clay, and glass products	263.33	284.28	283.11	286.31	295.89	296.54	302.47	308.73	306.28	310.95	316.06	319.66	323.75	324.95	316.36
Primary metal industries	342.76	371.36	378.51	384.21	384.62	386.92	377.67	377.32	379.05	383.76	397.01	402.59	419.42	433.68	430.13
Fabricated metal products	260.35	278.39	287.85	288.46	293.94	292.25	292.07	297.54	290.86	299.20	308.61	311.04	316.98	327.35	319.52
Machinery except electrical	285.44	305.98	317.89	319.14	322.04	320.21	322.73	325.18	322.00	326.03	339.48	340.25	348.57	360.39	355.21
Electric and electronic equipment	234.55	254.70	268.13	269.74	271.20	268.88	266.45	270.68	267.96	275.18	283.46	287.28	294.52	303.73	298.75
Transportation equipment	333.80	350.99	352.40	357.94	365.22	359.79	361.49	368.68	368.93	374.00	389.09	401.55	412.41	438.34	413.83
Instruments and related products	233.54	251.74	269.37	268.87	269.18	267.85	270.82	275.40	271.66	273.71	277.49	280.09	287.12	294.06	291.41
Miscellaneous manufacturing	181.97	195.16	204.86	204.58	207.19	206.21	206.28	207.59	206.39	210.21	215.44	215.90	218.96	226.51	223.10
Nondurable goods	217.88	235.80	244.92	243.90	245.07	246.13	248.45	251.42	254.10	257.52	261.58	262.75	267.24	273.03	270.96
Food and kindred products	230.26	250.17	261.10	259.62	260.52	262.58	270.75	270.86	274.91	278.07	279.28	275.92	284.31	286.94	288.40
Tobacco manufactures	233.55	252.70	264.08	271.58	285.39	297.58	295.67	305.25	294.19	284.83	283.44	303.16	309.60	309.12	331.04
Textile mill products	173.72	188.26	200.41	199.92	201.23	195.91	195.02	195.23	194.81	203.45	208.55	209.87	213.59	217.59	213.47
Apparel and other textile products	140.26	149.32	156.29	157.53	158.95	157.44	157.09	160.56	158.85	162.84	165.44	167.44	168.15	173.52	171.85
Paper and allied products	279.71	303.74	319.82	318.85	320.12	321.99	318.24	324.84	329.96	333.98	341.74	341.40	350.10	361.01	352.70
Printing and publishing	244.78	260.63	269.33	269.73	273.05	270.11	274.54	273.78	277.10	283.84	288.33	288.30	289.79	299.47	295.04
Chemicals and allied products	294.14	318.44	332.35	333.22	335.69	337.79	337.42	339.49	339.85	343.15	349.40	352.73	360.78	365.01	357.20
Petroleum and coal products	376.27	409.97	342.45	371.99	366.03	404.01	425.96	432.31	437.68	431.28	448.32	454.04	458.67	447.38	474.14
Rubber and miscellaneous plastics products	225.77	241.38	251.88	249.38	250.80	250.11	247.26	251.13	250.13	262.80	267.19	272.69	279.07	285.52	281.80
Leather and leather products	144.32	154.03	163.32	164.50	164.16	165.88	167.61	169.80	165.26	167.99	166.88	169.36	169.88	174.64	177.01
TRANSPORTATION AND PUBLIC UTILITIES	302.80	325.98	337.73	338.05	340.49	344.05	342.70	346.50	355.11	355.32	358.89	366.16	368.42	369.61	368.93
WHOLESALE AND RETAIL TRADE	153.64	164.96	170.35	170.98	172.80	171.72	172.90	175.39	178.10	179.20	178.48	179.44	180.48	182.00	183.54
WHOLESALE TRADE	228.14	247.93	258.72	259.97	262.27	263.81	265.27	265.49	267.02	269.18	272.58	274.77	277.92	281.64	282.98
RETAIL TRADE	130.20	138.62	142.44	142.44	143.82	142.56	144.12	146.83	149.82	151.10	149.00	149.40	150.60	151.59	152.74
FINANCE, INSURANCE, AND REAL ESTATE	178.00	190.77	200.19	203.28	206.18	205.62	205.77	210.03	208.87	211.27	211.91	214.53	218.16	217.80	220.93
SERVICES	163.67	175.27	183.63	185.25	186.88	186.30	187.02	190.57	191.65	192.31	192.73	195.60	198.86	198.86	200.26

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

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

Year and month	Private nonagricultural workers						Manufacturing workers					
	Gross average weekly earnings		Spendable average weekly earnings				Gross average weekly earnings		Spendable average weekly earnings			
			Worker with no dependents		Married worker with 3 dependents				Worker with no dependents		Married worker with 3 dependents	
	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars
1960	$80.67	$90.95	$65.59	$73.95	$72.96	$82.25	$89.72	$101.15	$72.57	$81.82	$80.11	$90.32
1961	82.60	92.19	67.08	74.87	74.48	83.13	92.34	103.06	74.60	83.26	82.18	91.72
1962	85.91	94.82	69.56	76.78	76.99	84.98	96.56	106.58	77.86	85.94	85.53	94.40
1963	88.46	96.47	71.05	77.48	78.56	85.67	99.23	108.21	79.51	86.71	87.25	95.15
1964	91.33	98.31	75.04	80.78	82.57	88.88	102.97	110.84	84.40	90.85	92.18	99.22
1965	95.45	101.01	79.32	83.94	86.63	91.67	107.53	113.79	89.08	94.26	96.78	102.41
1966	98.82	101.67	81.29	83.63	88.66	91.21	112.19	115.42	91.45	94.08	99.33	102.19
1967	101.84	101.84	83.38	83.38	90.86	90.86	114.49	114.49	92.97	92.97	100.93	100.93
1968	107.73	103.39	86.71	83.21	95.28	91.44	122.51	117.57	97.70	93.76	106.75	102.45
1969	114.61	104.38	90.96	82.84	99.99	91.07	129.51	117.95	101.90	92.81	111.44	101.49
1970	119.83	103.04	96.21	82.73	104.90	90.20	133.33	114.64	106.32	91.42	115.58	99.38
1971	127.31	104.95	103.80	85.57	112.43	92.69	142.44	117.43	114.97	94.78	124.24	102.42
1972	136.90	109.26	112.19	89.54	121.68	97.11	154.71	123.47	125.34	100.03	135.57	108.20
1973	145.39	109.23	117.51	88.29	127.38	95.70	166.46	125.06	132.57	99.60	143.50	107.81
1974	154.76	104.78	124.37	84.20	134.61	91.14	176.80	119.70	140.19	94.92	151.56	102.61
1975	163.53	101.45	132.49	82.19	145.65	90.35	190.79	118.36	151.61	94.05	166.29	103.16
1976	175.45	102.90	143.30	84.05	155.87	91.42	209.32	122.77	167.83	98.43	181.32	106.35
1977	189.00	104.13	155.19	85.50	169.93	93.63	228.90	126.12	183.80	101.27	200.06	110.23
1978	203.70	104.30	165.39	84.69	180.71	92.53	249.27	127.63	197.40	101.08	214.87	110.02
1979	219.30	100.73	177.55	81.56	194.35	89.27	268.94	123.54	212.43	97.58	232.07	106.60
1980: January	225.34	96.59	181.96	77.99	199.00	85.30	277.01	118.74	217.91	93.40	238.20	102.10
February	226.75	95.88	182.98	77.37	200.07	84.60	278.60	117.80	218.99	92.60	239.40	101.23
March	229.15	95.52	184.67	76.98	201.89	84.16	280.99	117.13	220.61	91.96	241.22	100.55
April	228.55	94.21	184.25	75.95	201.43	83.03	279.35	115.15	219.49	90.47	239.97	98.92
May	229.95	93.82	185.23	75.57	202.49	82.62	280.21	114.32	220.08	89.79	240.63	98.18
June	233.33	94.16	187.59	75.70	205.06	82.75	283.68	114.48	222.43	89.76	243.26	98.17
July	234.39	94.51	188.33	75.94	205.86	83.01	282.85	114.05	221.87	89.46	242.63	97.83
August	237.14	95.01	190.25	76.22	207.95	83.31	286.89	114.94	224.61	89.99	245.69	98.43
September	240.04	95.29	192.28	76.33	210.15	83.43	294.57	116.94	229.82	91.23	251.52	99.85
October	242.16	95.30	193.76	76.25	211.76	83.34	298.10	117.32	232.22	91.39	254.20	100.04
November	244.63	95.41	195.48	76.24	213.63	83.32	305.12	119.00	236.90	92.43	259.52	101.22
December[p]	246.71	95.37	196.94	76.13	215.21	83.19	314.52	121.58	243.09	93.97	266.40	102.98
1981: January[p]	246.05	(1)	195.20	(1)	213.43	(1)	308.43	(1)	237.60	(1)	260.36	(1)

[1]Not available.

NOTE: The earnings expressed in 1967 dollars have been adjusted for changes in price level as measured by the Bureau's Consumer Price Index for Urban Wage Earners and Clerical Workers. These series are described in "The Spendable Earnings Series: A Technical Note on its Calculation," **Employment and Earnings and Monthly Report on the Labor Force,** February 1969, pp. 6–13. See also "Spendable Earnings Formulas, 1978–80," **Employment and Earnings,** March 1980, pp. 10–11.

UNEMPLOYMENT INSURANCE DATA

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

Definitions

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

Under both State and Federal unemployment insurance programs for civilian employees, insured workers must report the completion of at least 1 week of unemployment before they are defined as unemployed. Persons not covered by unemployment insurance (about one-third of the labor force) and those who have exhausted or not yet earned benefit rights are excluded from the scope of the survey. **Initial claims** are notices filed by persons in unemployment insurance programs to indicate they are out of work and wish to begin receiving compensation. A claimant who continued to be unemployed a full week is then counted in the insured unemployment figure. The **rate of insured unemployment** expresses the number of insured unemployed as a percent of the average insured employment in a 12-month period.

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

21. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1979	1980											
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
All programs:													
Insured unemployment	3,047	3,740	3,730	3,652	3,629	3,680	3,790	4,140	3,911	3,961	3,661	3,726	4,085
State unemployment insurance program:[1]													
Initial claims[2]	2,263	2,837	1,818	1,705	2,190	2,248	2,319	2,737	1,829	1,702	1,808	1,673	....
Insured unemployment (average weekly volume)	2,864	3,537	3,518	3,356	3,278	3,343	3,455	3,692	3,408	3,087	2,903	2,983	3,321
Rate of insured unemployment	3.4	4.1	4.1	3.9	3.8	3.9	4.0	4.3	3.9	3.6	3.3	3.4	3.8
Weeks of unemployment compensated	9,171	13,792	12,801	13,170	12,689	12,302	12,441	14,398	12,786	11,689	11,443	9,514	....
Average weekly benefit amount for total unemployment	$94.54	$96.41	$98.39	$99.15	$99.52	$99.55	$99.88	$98.75	$99.68	$99.86	$92.32	$102.00	....
Total benefits paid	$843,869	$1,283,946	$1,229,877	$1,218,231	$1,232,173	$1,196,836	$1,213,595	$1,397,508	$1,249,782	$1,144,885	$1,125,416	$1,054,506	....
Unemployment compensation for ex-servicemen:[3]													
Initial claims[1]	24	25	21	21	21	20	23	27	23	25	23	17	....
Insured unemployment (average weekly volume)	56	60	58	63	52	50	45	58	55	56	56	54	55
Weeks of unemployment compensated	233	299	255	249	246	220	122	331	244	245	255	216	....
Total benefits paid	$23,093	$29,635	$25,308	$24,928	$24,518	$22,025	$11,761	$33,342	$24,560	$24,804	$25,880	$21,047	....
Unemployment compensation for Federal civilian employees:[4]													
Initial claims	15	19	11	12	11	12	14	17	15	19	21	14	....
Insured unemployment (average weekly volume)	31	34	32	30	25	22	20	26	25	29	32	35	37
Weeks of unemployment compensated	118	150	129	123	108	88	50	124	93	105	130	118	....
Total benefits paid	$11,047	$14,118	$12,226	$11,901	$10,323	$8,280	$4,665	$11,296	$8,707	$9,699	$11,917	$11,366	....
Railroad unemployment insurance:													
Applications	11	22	7	5	4	6	24	44	13	10	9	7	11
Insured unemployment (average weekly volume)	19	40	39	30	27	23	27	44	39	40	38	38	39
Number of payments	41	80	71	68	62	54	55	66	86	89	84	70	83
Average amount of benefit payment	$197.22	$199.01	$208.73	$210.79	$201.87	$193.44	$199.06	$207.08	$211.87	$211.99	$208.49	$209.00	$212.27
Total benefits paid	$8,085	$14,967	$14,573	$13,884	$13,002	$9,953	$10,140	$13,320	$17,336	$18,809	$17,789	$14,269	$18,046
Employment service:[5]													
New applications and renewals	4,378	5,980	7,285	8,708	10,021	11,446	12,864	14,249	15,431	....	....	....	....
Nonfarm placements	1,044	1,314	1,561	1,853	2,143	2,413	2,730	3,105	3,445	....	....	....	....

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

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

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

[4] Includes the Virgin islands. Exludes data on claims and payments made jointly with State programs.

[5] Cumulative total for fiscal year (October 1 – September 30).

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

PRICE DATA

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

Definitions

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

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

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

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

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

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

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

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

Notes on the data

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

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

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

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

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

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

[1967=100]

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

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
All items	229.9	247.8	249.4	251.7	253.9	256.2	258.4	230.0	248.0	249.6	251.9	254.1	256.4	258.7
Food and beverages	235.5	248.3	252.0	254.2	255.5	257.4	259.3	235.7	249.1	252.5	255.1	256.6	258.7	260.5
Housing	243.6	265.1	265.8	267.7	271.1	273.8	276.9	243.6	265.1	265.8	267.6	271.0	273.7	277.1
Apparel and upkeep	172.2	176.2	178.6	182.2	183.9	184.8	183.9	171.4	175.4	177.9	181.4	182.8	183.3	182.9
Transportation	227.7	251.0	252.7	254.7	256.1	259.0	261.1	228.3	251.9	253.5	255.2	256.6	259.7	261.9
Medical care	250.7	266.6	268.4	270.6	272.8	274.5	275.8	251.7	267.8	270.0	272.2	274.3	276.3	277.6
Entertainment	193.4	206.6	208.0	209.8	210.9	211.2	212.0	192.3	204.4	205.6	208.1	209.2	209.9	210.1
Other goods and services	204.0	213.5	214.5	220.6	221.5	222.8	224.6	203.0	212.9	214.0	219.0	219.9	221.0	223.0
Commodities	219.4	234.1	236.7	239.0	240.7	242.5	243.8	219.4	234.4	236.9	239.2	240.8	242.9	244.3
Commodities less food and beverages	208.8	224.0	226.0	228.4	230.2	232.0	232.9	208.7	224.2	226.2	228.4	230.0	232.0	233.1
Nondurables less food and beverages	219.0	241.4	242.6	244.1	244.4	245.3	246.8	220.5	243.5	244.8	246.0	246.1	247.1	248.8
Durables	199.8	209.8	212.4	215.3	218.1	220.6	221.1	198.2	208.0	210.5	213.5	216.3	218.9	219.7
Services	249.3	272.4	272.5	274.8	277.9	280.9	284.7	249.6	273.1	273.3	275.4	278.6	281.5	285.5
Rent, residential	182.9	192.1	193.2	195.1	197.1	198.3	199.6	182.7	191.8	193.0	194.8	196.8	198.0	199.4
Household services less rent	289.2	323.3	321.5	322.6	327.4	331.9	338.4	291.1	325.9	324.2	325.3	330.3	334.8	341.9
Transportation services	224.2	243.8	246.4	249.4	250.8	253.3	255.8	224.0	243.9	246.3	248.2	249.6	252.2	254.7
Medical care services	270.7	288.0	289.8	292.3	294.8	296.6	297.9	271.8	289.3	291.7	294.3	296.6	298.7	300.0
Other services	207.1	218.1	219.2	225.3	226.7	227.2	228.1	207.4	218.6	219.5	225.4	227.4	227.9	228.4
Special indexes:														
All items less food	226.4	245.1	246.3	248.6	250.9	253.2	255.5	226.4	245.3	246.6	248.7	251.0	253.4	255.7
All items less mortgage interest costs	221.7	236.8	239.0	241.5	243.0	244.5	245.9	222.0	237.4	239.6	242.0	243.5	245.1	246.7
Commodities less food	207.2	222.2	224.2	226.6	228.3	230.0	231.0	207.1	222.4	224.4	226.5	228.2	230.1	231.2
Nondurables less food	215.2	236.6	237.8	239.3	239.6	240.5	242.0	216.7	238.7	239.9	241.1	241.3	242.2	243.9
Nondurables less food and apparel	240.1	270.3	270.9	271.3	271.1	272.1	274.7	241.5	272.2	272.9	273.0	272.8	273.9	276.6
Nondurables	228.2	245.9	248.3	250.2	251.0	252.4	254.1	229.0	247.2	249.6	251.5	252.3	253.8	255.6
Services less rent	261.6	287.6	287.4	289.8	293.2	296.4	300.7	262.1	288.6	288.6	290.7	294.2	297.4	302.0
Services less medical care	245.3	268.9	268.7	271.0	274.2	277.2	281.2	245.5	269.4	269.4	271.4	274.7	277.7	281.9
Domestically produced farm foods	227.5	238.5	243.5	246.2	247.3	249.2	251.1	227.5	238.4	242.9	246.1	247.0	249.1	251.1
Selected beef cuts	263.2	269.2	274.5	278.8	276.8	278.9	276.2	265.2	271.2	275.9	280.8	279.0	280.7	278.4
Energy	313.7	370.4	370.7	370.1	368.0	366.1	370.4	317.0	373.9	374.2	373.1	371.1	369.5	373.7
All items less energy	223.6	238.3	240.0	242.5	245.1	247.7	249.7	223.0	237.6	239.4	242.0	244.5	247.2	249.3
All items less food and energy	218.1	233.1	234.3	236.9	239.7	242.4	244.5	217.3	232.1	233.4	235.9	238.7	241.5	243.6
Commodities less food and energy	192.6	202.0	204.3	207.2	209.4	211.2	211.7	191.4	200.6	202.9	205.7	207.8	209.9	210.6
Energy commodities	340.0	404.8	404.2	401.7	399.1	400.2	404.9	341.5	406.1	405.5	402.7	400.3	401.3	405.9
Services less energy	247.6	269.1	269.0	271.3	274.9	278.6	282.4	248.0	269.8	269.9	271.9	275.6	279.3	283.4
Purchasing power of the consumer dollar, 1967 = $1	$0.435	$0.404	$0.401	$0.397	$0.394	$0.390	$0.387	$0.435	$0.403	$0.401	$0.397	$0.394	$0.390	$0.387

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
FOOD AND BEVERAGES	235.5	248.3	252.0	254.2	255.5	257.4	259.3	235.7	249.1	252.5	255.1	256.6	258.7	260.5
Food	241.7	254.8	258.7	261.1	262.4	264.5	266.4	241.8	255.5	259.2	261.9	263.4	265.7	267.6
Food at home	238.7	251.5	256.3	258.9	260.0	262.1	263.9	238.3	251.1	255.6	258.6	259.7	262.0	263.9
Cereals and bakery products	231.6	247.8	249.2	250.3	253.7	255.8	258.5	232.3	248.0	249.6	251.1	254.3	256.8	259.5
Cereals and cereal products (12/77 = 100)	122.9	135.0	136.3	137.1	137.5	138.7	140.8	123.8	135.5	136.8	137.8	138.5	139.7	142.3
Flour and prepared flour mixes (12/77 = 100)	123.8	132.9	133.6	133.3	133.2	132.9	133.5	125.1	132.8	133.9	134.1	133.8	133.6	134.4
Cereal (12/77 = 100)	122.8	135.5	137.6	138.5	139.3	141.1	143.8	122.9	135.5	137.7	138.6	139.3	141.5	145.0
Rice, pasta, and cornmeal (12/77 = 100)	122.2	136.2	136.8	138.4	138.9	140.5	143.1	123.9	137.9	138.4	140.2	141.6	142.7	145.8
Bakery products (12/77 = 100)	122.4	129.8	130.4	130.9	133.1	134.3	135.4	122.7	129.8	130.5	131.2	133.3	134.7	135.7
White bread	207.4	218.4	217.9	219.6	222.7	224.9	226.3	206.6	217.5	217.2	219.3	222.6	225.2	226.6
Other breads (12/77 = 100)	123.3	129.4	129.7	130.9	132.5	133.1	134.1	126.0	132.3	133.3	134.3	135.8	137.0	137.9
Fresh biscuits, rolls, and muffins (12/77 = 100)	123.1	129.2	130.0	129.2	133.4	134.6	135.4	122.3	128.1	128.9	128.1	132.1	134.1	135.1
Fresh cakes and cupcakes (12/77 = 100)	120.3	127.9	129.8	129.5	132.5	133.4	135.3	120.1	127.3	129.4	129.7	132.6	133.1	134.2
Cookies (12/77 = 100)	117.8	127.1	128.7	129.9	131.0	133.1	134.9	119.6	128.3	130.1	131.7	132.5	134.5	136.1
Crackers and bread and cracker products (12/77 = 100)	116.2	125.5	124.6	124.2	126.4	125.6	126.9	116.3	125.7	124.7	124.5	126.5	125.7	126.5
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	121.5	129.5	131.4	131.6	133.4	135.3	135.9	123.4	130.0	131.6	132.0	134.1	136.1	136.4
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	124.8	131.5	131.4	132.1	135.3	136.2	137.5	121.4	129.6	129.2	129.9	130.9	132.4	134.0
Meats, poultry, fish, and eggs	235.5	236.7	245.4	251.8	252.6	254.9	255.7	235.1	236.1	244.3	251.2	251.8	254.2	255.0
Meats, poultry, and fish	239.8	243.4	251.0	257.7	259.0	260.7	259.9	239.2	242.8	249.8	257.1	258.1	259.9	259.2
Meats	242.3	243.3	251.1	257.8	258.7	261.1	260.0	241.8	242.8	250.0	257.2	258.1	260.3	259.3
Beef and veal	262.2	267.9	273.1	277.5	275.8	277.9	275.3	263.7	269.6	274.1	279.1	277.4	279.1	276.8
Ground beef other than canned	271.2	266.6	272.9	276.8	275.8	277.1	276.1	273.0	268.7	275.6	279.9	278.9	280.4	281.0
Chuck roast	268.1	277.7	279.8	287.7	284.4	291.7	288.5	274.2	285.3	287.9	295.4	294.0	301.9	296.0
Round roast	238.1	243.2	248.8	248.0	250.6	251.2	245.7	240.5	246.2	248.2	249.0	251.1	249.9	246.6
Round steak	247.5	253.2	258.0	260.7	258.9	263.8	260.2	246.2	253.6	256.4	261.4	257.9	261.8	257.6
Sirloin steak	250.8	270.2	274.1	280.9	270.7	271.8	267.6	253.5	274.2	278.8	282.2	272.8	274.9	269.7
Other beef and veal (12/77 = 100)	150.2	155.9	159.0	161.8	161.0	161.8	160.4	149.9	155.2	157.6	161.2	160.3	160.3	159.2
Pork	205.0	200.3	212.0	222.7	225.8	228.6	229.1	205.6	200.7	212.0	222.8	225.8	228.5	228.8
Bacon	193.6	186.3	201.5	220.1	224.7	229.5	231.9	195.8	189.1	205.6	223.0	226.0	232.3	234.1
Pork chops	187.8	193.1	199.9	206.2	207.8	208.5	208.7	189.1	193.3	198.5	205.0	207.3	204.8	206.8
Ham other than canned (12/77 = 100)	102.5	92.1	98.4	102.2	105.5	107.9	107.8	100.9	90.5	96.3	100.7	103.5	106.0	105.7
Sausage	256.5	249.2	262.5	277.9	282.4	283.5	285.6	258.3	252.0	263.6	280.0	283.2	285.9	287.2
Canned ham	218.9	208.6	217.0	225.1	232.5	237.7	238.4	219.1	207.6	219.1	225.9	235.2	242.2	242.6
Other pork (12/77 = 100)	112.6	115.1	123.1	128.6	127.6	128.4	127.6	112.7	114.9	122.7	128.5	127.9	128.8	127.4
Other meats	243.0	239.1	247.8	254.9	259.4	261.8	262.8	239.5	236.5	244.1	251.5	255.8	259.0	259.4
Frankfurters	239.3	229.1	245.8	256.1	260.9	262.6	264.0	238.7	231.5	245.9	254.3	260.3	262.6	263.4
Bologna, liverwurst, and salami (12/77 = 100)	134.4	135.1	138.5	143.5	146.5	148.4	149.1	130.8	131.4	134.5	141.2	143.6	145.7	145.2
Other lunchmeats (12/77 = 100)	121.5	120.6	123.7	125.7	127.8	129.7	129.9	119.4	118.8	121.5	123.5	125.5	127.5	127.7
Lamb and organ meats (12/77 = 100)	140.0	137.2	140.4	143.8	146.1	146.1	146.6	141.7	138.2	140.8	145.0	146.5	147.7	148.5
Poultry	176.2	187.9	197.5	205.2	209.1	204.1	202.7	173.9	186.0	195.1	203.3	205.4	201.4	201.1
Fresh whole chicken	175.2	193.6	205.3	214.0	216.7	208.7	206.9	169.8	189.1	199.9	209.6	210.5	203.5	202.2
Fresh and frozen chicken parts (12/77 = 100)	112.3	120.9	127.8	134.0	134.7	131.8	131.6	111.8	120.8	128.1	134.1	133.5	131.6	132.3
Other poultry (12/77 = 100)	116.9	117.0	120.3	122.9	128.7	128.0	126.6	117.4	116.6	119.1	122.0	127.1	126.5	126.2
Fish and seafood	312.6	330.1	331.8	335.8	336.6	343.0	346.9	309.1	326.4	327.3	333.4	333.8	340.0	343.1
Canned fish and seafood (12/77 = 100)	117.1	129.2	131.2	133.2	133.9	136.0	136.4	116.5	127.3	129.3	131.0	131.2	133.5	133.7
Fresh and frozen fish and seafood (12/77 = 100)	120.2	123.7	123.6	124.8	124.8	127.5	129.6	118.5	122.5	121.8	124.5	124.6	127.0	128.8
Eggs	185.9	154.2	178.3	179.9	175.3	185.2	206.6	186.6	153.5	177.1	178.4	174.4	185.7	206.6
Dairy products	216.9	228.6	229.7	230.6	232.7	235.4	238.0	217.4	229.2	229.9	230.9	233.1	235.9	238.8
Fresh milk and cream (12/77 = 100)	122.7	127.7	127.9	128.0	129.1	130.4	131.9	122.6	128.0	128.0	128.2	129.1	130.4	132.2
Fresh whole milk	201.2	209.4	209.8	209.7	211.3	213.3	216.2	200.9	209.8	209.7	209.8	211.0	213.0	216.5
Other fresh milk and cream (12/77 = 100)	122.0	126.9	127.1	127.7	129.1	130.5	131.4	122.2	127.5	127.6	128.3	129.5	131.0	131.9
Processed dairy products (12/77 = 100)	122.5	131.4	132.5	133.6	134.9	136.9	138.2	123.3	131.9	132.9	134.1	135.8	137.9	139.2
Butter	214.0	226.9	231.2	236.2	238.9	241.5	241.0	216.6	229.7	233.7	238.8	242.5	244.4	244.1
Cheese (12/77 = 100)	122.6	130.0	130.4	132.3	133.4	135.9	137.0	122.7	130.1	130.9	132.7	133.8	136.2	137.4
Ice cream and related products (12/77 = 100)	122.6	134.6	137.0	135.7	138.0	139.1	141.4	124.3	135.5	136.1	135.4	139.1	140.9	143.2
Other dairy products (12/77 = 100)	117.9	127.5	128.3	128.9	129.0	130.6	132.4	118.3	127.7	128.8	129.3	129.4	131.9	133.1
Fruits and vegetables	230.2	253.9	258.4	257.4	254.2	253.3	255.6	228.3	253.0	256.6	255.8	252.3	251.4	253.9
Fresh fruits and vegetables	230.1	265.8	273.0	269.6	262.3	258.3	262.0	228.5	265.2	270.8	267.8	259.6	255.7	260.2
Fresh fruits	234.9	282.7	302.3	286.3	272.9	258.6	251.8	233.3	282.3	300.1	284.9	270.4	255.5	248.6
Apples	221.8	316.6	340.8	295.2	242.2	213.5	218.8	220.2	318.7	342.2	295.3	243.7	213.0	216.9
Bananas	225.2	232.6	234.0	238.0	233.4	235.7	244.1	222.0	228.7	228.0	234.3	230.2	232.0	239.2
Oranges	256.7	273.9	297.1	296.5	312.9	316.6	299.3	249.5	261.5	285.5	284.2	301.5	300.4	287.0
Other fresh fruits (12/77 = 100)	121.1	147.5	158.5	150.8	145.4	134.9	128.6	121.6	148.7	157.9	151.9	145.6	136.4	129.2
Fresh vegetables	225.7	250.1	245.6	253.9	252.4	258.0	271.5	224.2	249.8	244.4	252.4	249.9	256.0	270.9
Potatoes	207.0	310.5	327.1	313.2	295.6	293.0	297.7	199.6	309.4	325.4	309.2	292.0	289.9	298.0
Lettuce	227.5	205.9	213.1	265.9	249.1	273.5	255.3	231.3	200.6	209.3	262.5	241.3	267.2	253.8
Tomatoes	227.9	209.2	205.4	214.2	237.3	192.2	206.1	224.8	210.8	199.6	210.8	235.6	188.9	204.5
Other fresh vegetables (12/77 = 100)	128.0	137.1	126.2	127.1	129.7	139.6	156.3	128.1	138.0	127.0	127.6	129.6	140.0	156.2
Processed fruits and vegetables	232.3	243.0	244.5	246.3	247.5	250.1	250.9	230.0	241.5	242.9	244.6	246.4	248.8	249.0
Processed fruits (12/77 = 100)	121.8	126.6	126.9	127.4	127.8	129.1	129.0	121.3	126.8	127.2	127.6	128.5	129.4	129.1
Frozen fruit and fruit juices (12/77 = 100)	116.8	118.5	119.2	119.3	118.8	120.5	120.6	115.9	117.8	118.1	118.5	118.8	120.7	119.9
Fruit juices and other than frozen (12/77 = 100)	123.6	130.6	130.1	130.8	131.0	131.9	131.6	123.4	130.9	130.7	131.0	131.9	132.3	132.2
Canned and dried fruits (12/77 = 100)	124.2	129.0	130.0	130.7	132.0	133.3	133.1	123.5	129.5	130.7	131.5	132.7	133.5	133.3
Processed vegetables (12/77 = 100)	111.7	117.6	118.8	120.1	120.8	122.2	123.1	110.5	116.6	117.5	118.7	119.6	121.0	121.5
Frozen vegetables (12/77 = 100)	110.6	118.4	119.6	119.7	120.3	121.8	122.1	110.8	118.2	119.2	119.4	120.3	121.7	121.2

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
FOOD AND BEVERAGES—Continued														
Food—Continued														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	114.4	118.1	119.4	121.4	122.5	124.1	124.5	113.0	117.0	118.1	119.6	120.9	121.8	122.8
Other canned and dried vegetables (12/77=100)	110.9	117.0	118.0	119.6	120.3	121.5	122.9	109.1	115.6	116.4	117.9	118.5	120.3	121.0
Other foods at home	281.1	304.3	307.8	309.2	311.5	314.8	317.1	279.9	303.7	307.4	309.1	311.7	315.7	317.8
Sugar and sweets	284.6	353.1	355.1	361.1	369.0	381.3	386.3	284.1	354.6	356.6	361.8	369.8	383.9	388.9
Candy and chewing gum (12/77=100)	120.1	131.6	132.6	134.2	134.7	135.7	136.9	119.9	132.0	133.2	134.7	135.4	136.8	137.4
Sugar and artificial sweeteners (12/77=100)	117.2	194.2	194.6	200.2	209.4	225.9	230.3	117.6	194.5	195.1	199.7	209.5	225.9	231.4
Other sweets (12/77=100)	117.5	127.2	128.3	129.2	131.5	132.5	133.7	116.6	126.5	126.9	127.7	129.2	131.9	133.1
Fats and oils (12/77=100)	233.0	239.3	242.0	243.6	246.0	247.4	251.9	233.7	240.6	242.4	244.6	247.0	248.2	252.6
Margarine	247.7	247.0	249.3	249.2	254.2	254.9	253.6	247.8	248.6	251.5	251.8	256.6	256.9	254.6
Nondairy substitutes and peanut butter (12/77=100)	115.7	123.6	124.7	125.8	125.6	127.4	139.6	115.8	124.0	124.8	125.8	125.5	128.0	139.9
Other fats, oils, and salad dressings (12/77=100)	121.1	124.6	126.2	127.4	128.5	129.0	129.1	121.5	125.0	125.7	127.4	128.7	128.8	129.1
Nonalcoholic beverages	375.4	397.4	402.8	403.9	404.9	405.5	405.2	372.3	396.2	403.0	403.6	405.8	407.8	407.4
Cola drinks, excluding diet cola	247.2	268.4	275.2	276.7	280.4	284.0	285.2	243.4	265.6	274.7	274.9	279.6	283.6	284.0
Carbonated drinks, including diet cola (12/77=100)	118.7	129.2	131.3	132.5	133.9	133.8	134.8	116.4	127.4	128.8	130.2	131.8	133.2	133.5
Roasted coffee	440.7	435.3	433.9	426.1	411.8	399.2	389.7	435.3	432.3	430.4	423.1	409.3	395.5	386.2
Freeze dried and instant coffee	374.3	381.0	380.3	376.1	368.1	364.9	356.5	372.9	379.2	379.7	374.8	366.3	364.0	358.1
Other noncarbonated drinks (12/77=100)	116.3	122.1	123.1	124.5	125.8	126.7	127.5	115.5	121.1	122.3	123.8	125.3	126.2	127.7
Other prepared foods	217.4	232.3	234.9	235.2	236.6	239.9	242.4	217.2	232.1	234.2	235.6	236.9	240.4	242.8
Canned and packaged soup (12/77=100)	115.9	123.3	123.7	123.8	124.1	125.1	127.2	116.3	123.5	124.2	124.7	124.9	125.6	128.0
Frozen prepared foods (12/77=100)	125.6	132.4	134.6	133.9	133.9	136.6	137.6	123.9	131.3	131.7	131.6	131.9	133.5	134.8
Snacks (12/77=100)	121.3	128.3	129.3	129.8	130.6	135.2	138.6	122.2	128.5	129.9	130.4	131.0	136.1	140.1
Seasonings, olives, pickles, and relish (12/77=100)	120.1	128.0	129.4	130.7	131.9	133.5	134.2	119.0	127.3	127.8	129.5	132.2	132.8	133.4
Other condiments (12/77=100)	119.5	130.2	131.8	133.0	133.4	133.3	133.5	120.2	131.6	133.4	135.0	135.3	136.5	136.3
Miscellaneous prepared foods (12/77=100)	118.9	129.3	130.9	130.6	132.0	133.5	133.8	118.7	128.9	130.2	131.1	131.7	133.8	133.5
Other canned and packaged prepared foods (12/77=100)	118.6	126.0	127.5	126.9	127.9	128.6	130.3	118.6	125.4	126.8	127.2	128.2	128.9	130.2
Food away from home	253.4	267.8	269.5	271.4	273.1	275.3	277.7	255.1	271.2	272.8	274.9	277.4	279.5	281.8
Lunch (12/77=100)	123.3	130.0	131.2	132.1	132.9	134.3	135.7	124.0	131.1	131.8	132.9	134.4	135.7	137.3
Dinner (12/77=100)	123.4	130.1	130.7	131.9	132.4	133.4	134.4	124.2	132.0	132.8	133.8	135.1	136.1	136.7
Other meals and snacks (12/77=100)	121.4	129.3	130.0	130.4	131.8	132.5	133.7	122.5	131.6	132.3	133.3	133.9	134.5	135.6
Alcoholic beverages	178.0	187.2	188.7	189.6	190.4	190.9	191.6	178.7	189.2	190.6	191.7	192.5	192.8	193.7
Alcoholic beverages at home (12/77=100)	116.0	122.1	123.1	123.6	124.0	124.4	124.9	117.0	123.6	124.6	125.1	125.6	125.9	126.5
Beer and ale	177.8	189.2	190.1	190.8	191.7	192.0	192.9	177.6	189.7	191.1	191.9	192.0	192.2	192.9
Whiskey	130.8	135.2	136.9	137.6	137.7	138.9	138.9	132.0	136.6	137.8	138.5	139.0	139.8	140.2
Wine	199.1	212.6	213.9	214.7	215.4	215.2	217.6	204.0	217.4	218.1	219.8	224.2	224.0	227.2
Other alcoholic beverages (12/77=100)	106.9	109.6	111.2	111.7	112.5	112.9	112.7	106.4	109.6	111.1	111.2	111.6	112.0	112.1
Alcoholic beverages away from home (12/77=100)	116.8	122.5	123.5	124.5	125.1	125.3	125.8	115.2	122.9	123.6	124.8	125.3	125.5	126.2
HOUSING	243.6	265.1	265.8	267.7	271.1	273.8	276.9	243.6	265.1	265.8	267.6	271.0	273.7	277.1
Shelter	259.4	282.9	283.3	285.3	290.4	294.7	298.5	260.4	284.3	284.8	286.8	292.0	296.4	300.4
Rent, residential	182.9	192.1	193.2	195.1	197.1	198.3	199.6	182.7	191.8	193.0	194.8	196.8	198.0	199.4
Other rental costs	244.9	265.7	267.5	268.9	268.8	268.3	267.7	244.4	265.5	267.3	268.6	268.8	268.4	267.3
Lodging while out of town	258.4	283.8	286.4	287.0	286.0	284.2	282.6	256.9	282.3	285.1	285.6	284.9	283.3	281.0
Tenants' insurance (12/77=100)	115.1	123.1	122.2	124.7	125.4	126.5	126.9	115.5	123.3	122.7	125.2	126.0	126.8	127.2
Homeownership	286.9	315.4	315.4	317.6	323.8	329.4	334.2	288.7	317.9	318.1	320.2	326.7	332.3	337.5
Home purchase	239.9	253.9	258.1	261.5	265.5	267.3	267.2	240.2	254.3	258.6	262.1	266.4	268.2	268.0
Financing, taxes, and insurance	348.3	399.6	393.6	393.5	404.7	416.9	429.4	351.6	405.0	398.8	398.9	410.8	423.1	436.0
Property insurance	323.1	355.5	355.9	359.8	362.0	364.5	365.8	324.5	357.2	357.9	362.9	365.3	367.8	369.0
Property taxes	186.0	188.3	190.3	191.2	192.0	192.8	194.5	187.4	190.0	192.0	193.0	193.8	194.7	196.4
Contracted mortgage interest cost	435.3	512.2	501.8	500.9	518.1	536.7	555.5	436.1	514.6	504.2	503.6	521.2	539.7	558.7
Mortgage interest rates	178.3	199.0	192.0	188.9	192.6	198.0	205.1	178.4	199.6	192.5	189.5	193.0	198.4	205.5
Maintenance and repairs	268.3	287.6	288.5	291.6	292.8	294.2	296.8	268.9	285.1	287.7	290.3	290.4	291.1	294.2
Maintenance and repair services	290.4	312.1	312.4	315.9	317.0	318.6	321.5	292.8	309.0	312.1	315.6	315.1	315.9	320.3
Maintenance and repair commodities	216.6	230.3	232.7	234.9	236.3	237.1	239.1	215.8	231.3	233.2	233.9	235.0	235.6	236.2
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	121.6	133.4	134.4	135.6	136.9	137.4	139.2	120.3	132.2	133.1	132.7	133.1	134.7	134.9
Lumber, awnings, glass, and masonry (12/77=100)	115.4	119.1	120.1	122.2	122.4	122.3	123.2	118.1	119.3	120.4	121.8	122.5	122.0	122.9
Plumbing, electrical, heating, and cooling supplies (12/77=100)	114.7	121.1	122.7	123.2	123.8	124.2	124.8	114.5	125.9	126.6	126.1	126.6	124.6	124.9
Miscellaneous supplies and equipment (12/77=100)	114.3	120.1	122.1	122.7	123.3	123.7	124.2	112.3	122.5	123.9	125.2	125.9	126.4	126.3
Fuel and other utilities	255.1	285.5	286.8	288.2	287.6	285.7	289.9	255.7	286.1	287.4	288.7	288.0	286.3	290.7
Fuels	311.8	360.8	362.5	364.5	362.8	358.7	364.7	311.8	360.3	362.1	363.8	362.1	358.2	364.5
Fuel oil, coal, and bottled gas	488.0	560.4	561.5	561.5	558.7	567.0	585.3	489.0	561.9	562.7	562.9	559.9	568.3	587.0
Fuel oil	507.3	585.1	586.1	585.4	581.5	589.8	610.0	508.1	585.6	586.4	585.9	581.8	590.3	610.9
Other fuels (6/78 = 100)	126.0	140.4	140.8	142.1	143.1	145.7	148.4	126.6	142.1	142.5	143.8	144.8	147.3	150.1
Gas (piped) and electricity	270.8	314.3	316.1	318.4	317.1	310.5	313.9	270.7	313.5	315.4	317.4	316.0	309.8	313.4
Electricity	224.7	267.4	268.3	269.2	265.3	258.7	262.3	224.9	267.6	268.6	269.6	265.3	258.4	262.1
Utility (piped) gas	332.6	371.8	375.2	380.2	384.6	379.0	381.5	331.1	368.6	372.0	376.1	380.9	376.7	379.7

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
HOUSING—Continued														
Fuel and other utilities—Continued														
Other utilities and public services	161.9	165.9	166.5	167.1	167.8	169.0	170.6	161.8	165.9	166.4	167.1	167.8	169.1	170.7
Telephone services	134.3	136.3	136.5	137.0	137.5	138.7	140.3	134.2	136.1	136.4	136.9	137.4	138.7	140.3
Local charges (12/77 = 100)	103.2	105.4	105.4	106.0	106.6	108.3	110.5	103.2	105.2	105.2	105.9	106.5	108.3	110.6
Interstate toll calls (12/77 = 100)	98.4	101.6	101.9	102.1	102.1	101.7	101.8	98.4	101.6	101.9	102.1	102.1	101.8	101.8
Intrastate toll calls (12/77 = 100)	101.5	99.5	99.9	100.1	100.1	100.6	100.9	101.3	99.3	99.7	100.0	99.9	100.5	100.7
Water and sewerage maintenance	247.2	261.3	263.5	264.5	266.2	267.0	267.8	247.3	262.4	264.5	265.5	267.3	268.0	268.7
Household furnishings and operations	195.8	206.2	207.2	209.2	210.1	211.0	211.6	193.9	203.5	204.5	206.0	206.8	208.1	209.0
Housefurnishings	166.9	174.7	175.2	177.3	177.9	178.1	178.3	165.9	172.9	173.5	175.0	175.6	176.4	176.9
Textile housefurnishings	178.6	188.2	189.1	194.1	195.9	192.4	193.2	177.3	188.7	189.6	192.5	195.1	195.7	196.6
Household linens (12/77 = 100)	108.3	114.6	114.1	118.4	119.5	117.3	117.2	107.2	114.8	114.7	117.7	119.5	122.6	122.7
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	114.6	120.2	121.9	123.6	124.9	122.7	123.8	114.4	121.0	122.4	122.7	124.1	121.2	122.4
Furniture and bedding	182.8	192.8	192.6	195.7	195.2	196.5	197.0	182.7	189.7	189.9	192.0	192.5	193.9	194.4
Bedroom furniture (12/77 = 100)	118.3	125.4	125.8	127.9	127.4	128.6	129.2	116.0	122.6	123.6	124.5	124.6	125.5	125.7
Sofas (12/77 = 100)	108.2	112.2	111.3	112.7	113.8	114.2	115.3	111.6	111.7	110.4	111.1	113.0	113.6	114.7
Living room chairs and tables (12/77 = 100)	108.1	110.7	111.6	114.1	113.0	113.3	113.1	109.2	111.3	112.3	115.1	114.4	115.6	115.2
Other furniture (12/77 = 100)	117.1	126.6	125.7	127.5	127.0	127.9	127.8	115.9	123.0	122.5	123.6	123.6	124.6	124.7
Appliances including TV and sound equipment	137.5	140.5	141.4	142.0	142.3	142.6	142.4	136.9	140.1	140.6	141.2	141.2	141.4	142.0
Television and sound equipment (12/77 = 100)	105.3	105.8	106.6	107.0	107.1	107.4	107.2	104.8	105.0	105.2	105.7	105.6	106.1	106.1
Television	103.6	104.4	105.0	105.0	104.7	105.1	105.2	102.2	102.7	103.3	103.2	103.2	103.8	103.7
Sound equipment (12/77 = 100)	107.8	108.2	109.1	109.8	110.3	110.6	110.1	108.0	108.0	107.9	108.8	108.7	109.1	109.2
Household appliances	157.9	163.7	164.6	165.5	166.0	166.2	165.9	157.1	163.8	164.5	165.2	165.3	165.2	166.3
Refrigerators and home freezer	156.7	163.6	164.4	164.8	165.8	166.1	166.5	159.0	166.4	168.0	169.1	169.4	169.2	170.9
Laundry equipment (12/77 = 100)	113.6	119.6	120.2	120.9	121.5	122.0	123.4	112.8	118.7	120.1	120.0	120.2	120.2	121.4
Other household appliances (12/77 = 100)	109.9	112.6	113.3	114.2	114.2	114.2	113.1	108.2	112.1	112.0	112.5	112.5	112.4	112.8
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	108.6	111.6	111.8	111.8	112.4	113.0	112.0	108.1	112.8	111.4	111.8	112.1	112.6	113.9
Office machines, small electric appliances, and air conditioners (12/77 = 100)	111.4	113.8	115.1	117.0	116.2	115.5	114.3	108.3	111.3	112.6	113.4	113.0	112.1	111.5
Other household equipment (12/77 = 100)	113.0	121.3	121.7	123.0	124.1	124.6	124.8	111.8	119.7	120.5	121.6	122.2	123.2	123.1
Floor and window coverings, infants' laundry cleaning and outdoor equipment (12/77 = 100)	111.7	120.8	121.7	123.0	123.3	124.3	124.6	107.4	114.7	115.3	116.8	118.2	119.0	118.4
Clocks, lamps, and decor items (12/77 = 100)	110.1	119.0	119.8	120.6	121.6	121.4	121.7	107.3	116.6	117.1	118.2	119.4	119.2	118.8
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	117.2	126.4	125.8	128.2	130.0	130.6	130.8	115.2	124.0	125.1	126.3	126.3	127.4	127.6
Lawn equipment, power tools, and other hardware (12/77 = 100)	110.3	115.9	117.1	117.2	117.9	118.4	118.7	112.5	118.7	119.6	120.3	120.9	122.3	122.3
Housekeeping supplies	229.2	247.3	249.9	252.0	253.6	256.0	257.7	227.2	245.2	247.8	249.6	251.2	253.5	256.0
Soaps and detergents	221.2	237.2	240.1	243.7	248.7	252.4	254.0	219.7	234.4	236.8	241.1	245.6	248.2	252.3
Other laundry and cleaning products (12/77 = 100)	114.7	122.3	124.4	125.6	125.7	126.7	127.6	114.5	122.3	123.9	125.0	125.1	126.2	127.6
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	120.5	130.2	132.2	133.8	134.2	135.6	136.1	120.9	132.7	135.1	135.8	136.2	136.6	137.6
Stationery, stationery supplies, and gift wrap (12/77 = 100)	111.9	117.6	117.4	118.0	118.6	118.3	119.5	109.3	117.9	117.4	116.9	118.2	118.8	120.0
Miscellaneous household products (12/77 = 100)	116.9	125.4	127.7	129.0	129.5	131.1	132.5	114.7	123.5	125.5	126.6	126.7	128.4	129.5
Lawn and garden supplies (12/77 = 100)	112.5	127.6	127.5	127.1	126.9	128.0	128.4	109.9	120.7	121.4	120.5	121.0	122.5	122.5
Housekeeping services	258.3	270.4	271.6	273.3	274.5	276.1	277.1	257.5	268.1	269.0	270.2	271.0	272.5	273.8
Postage	257.3	257.3	257.3	257.3	257.3	257.3	257.3	257.2	257.3	253.7	257.3	257.3	257.3	257.3
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	121.2	131.0	131.3	132.8	133.3	134.6	134.4	122.3	129.7	129.7	130.3	130.2	131.4	131.8
Appliance and furniture repair (12/77 = 100)	113.4	118.7	119.4	119.8	120.3	120.7	121.4	113.4	117.8	118.3	118.7	119.2	119.7	120.6
APPAREL AND UPKEEP	172.2	176.2	178.6	182.2	183.9	184.8	183.9	171.4	175.4	177.9	181.4	182.8	183.3	182.9
Apparel commodities	166.1	168.5	171.0	174.9	176.4	177.2	176.0	165.7	168.0	170.7	174.4	175.6	176.0	175.3
Apparel commodities less footwear	163.0	165.0	167.8	171.8	173.1	173.9	172.5	162.6	164.4	167.3	171.1	172.2	172.5	171.6
Men's and boys'	165.4	165.9	167.9	171.7	173.9	174.8	174.3	165.0	167.2	168.4	171.6	173.8	174.8	174.4
Men's (12/77 = 100)	104.3	103.9	105.6	108.1	109.5	110.1	109.8	104.2	104.7	106.1	108.3	109.5	110.2	109.9
Suits, sport coats, and jackets (12/77 = 100)	100.9	97.1	99.2	103.2	104.3	104.7	103.5	96.8	93.2	95.2	98.3	99.7	99.4	98.2
Coats and jackets (12/77 = 100)	98.0	96.0	96.7	99.9	100.4	100.5	99.7	99.1	97.1	98.0	100.0	101.3	101.9	101.9
Furnishings and special clothing (12/77 = 100)	112.3	118.4	119.3	120.8	122.9	123.3	123.9	109.9	115.7	116.3	117.5	118.8	119.7	120.0
Shirts (12/77 = 100)	110.5	110.7	114.9	116.9	118.3	119.6	119.7	111.5	111.2	115.1	117.4	118.5	120.4	120.7
Dungarees, jeans, and trousers (12/77 = 100)	100.4	99.2	99.5	101.2	102.6	103.5	103.4	103.4	104.8	105.0	107.1	108.3	108.7	108.1
Boys' (12/77 = 100)	106.6	110.0	109.5	111.4	113.0	113.3	113.1	105.8	110.0	108.6	110.2	112.0	112.7	112.6
Coats, jackets, sweaters, and shirts (12/77 = 100)	102.4	104.4	106.0	108.1	109.2	109.4	108.6	103.1	107.4	107.1	109.6	111.2	112.5	111.8
Furnishings (12/77 = 100)	111.9	114.7	114.6	116.6	118.1	118.4	118.7	110.2	113.3	112.9	113.7	115.1	115.2	116.2
Suits, trousers, sport coats, and jackets (12/77 = 100)	107.8	112.6	110.3	111.9	113.9	114.3	114.3	106.2	110.9	108.2	109.4	111.5	111.9	112.0
Women's and girls'	154.6	150.6	153.7	159.0	159.7	159.9	157.4	153.5	149.9	154.1	159.8	160.3	159.9	158.2
Women's (12/77 = 100)	102.8	99.8	101.7	105.7	106.1	106.3	104.4	102.3	99.6	102.5	107.0	107.0	106.6	105.3
Coats and jackets	170.0	158.8	164.0	168.9	167.0	164.7	161.4	167.9	157.5	170.2	177.0	176.5	175.5	172.2
Dresses	165.3	153.9	158.3	168.5	170.0	168.1	163.8	155.7	146.2	151.1	156.8	157.5	157.7	154.3
Separates and sportswear (12/77 = 100)	98.6	96.8	98.5	102.2	101.6	102.9	101.4	99.5	97.1	99.7	104.6	103.6	102.8	98.2
Underwear, nightwear, and hosiery (12/77 = 100)	108.2	113.2	114.2	114.6	114.9	116.7	116.8	109.3	112.8	114.3	114.8	115.3	116.4	116.6
Suits (12/77 = 100)	95.8	85.5	86.5	95.4	98.2	97.4	91.9	98.1	90.1	91.3	105.7	106.8	102.8	98.2
Girls (12/77 = 100)	102.8	102.0	104.5	105.8	107.0	106.5	106.1	101.4	100.0	102.3	103.3	105.1	105.3	104.9
Coats, jackets, dresses, and suits (12/77 = 100)	100.3	98.9	103.4	102.1	103.2	102.7	101.3	97.7	95.6	99.5	97.3	99.0	99.1	98.6
Separates and sportswear (12/77 = 100)	102.6	99.7	102.0	105.3	106.7	105.9	106.1	102.9	98.2	100.7	104.2	106.3	106.8	106.6
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	107.3	111.4	111.2	113.0	113.8	114.0	113.8	104.4	110.4	109.6	111.3	112.8	112.6	112.2

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
APPAREL AND UPKEEP—Continued														
Apparel commodities—Continued														
Apparel commodities less footwear—Continued														
Infants' and toddlers'	227.1	243.0	243.9	242.4	244.1	248.9	250.1	230.5	249.2	252.6	248.3	249.2	254.0	255.4
Other apparel commodities	180.9	205.5	209.9	210.5	211.8	213.7	213.3	182.9	200.3	204.1	204.4	204.1	204.0	204.4
Sewing materials and notions (12/77 = 100)	102.4	109.3	110.2	110.9	111.9	110.3	110.6	100.8	108.3	110.0	110.7	112.0	110.2	110.0
Jewelry and luggage (12/77 = 100)	123.1	142.8	146.5	146.8	147.5	149.9	149.5	126.2	139.4	142.0	142.0	141.1	141.8	142.3
Footwear	184.3	189.5	190.3	193.2	196.1	196.5	196.6	183.8	189.3	190.0	193.3	195.6	196.4	196.7
Men's (12/77 = 100)	117.3	121.1	121.3	123.6	124.7	125.4	124.6	119.4	123.2	123.4	124.9	125.8	126.7	126.0
Boys' and girls' (12/77 = 100)	115.8	123.5	122.8	123.3	125.8	126.2	126.6	114.7	123.1	123.9	124.6	126.9	127.4	127.8
Womens' (12/77 = 100)	113.8	113.8	115.4	117.7	119.6	119.4	120.0	111.8	111.3	111.7	115.1	116.3	116.5	117.5
Apparel services	216.6	234.4	235.4	237.3	240.0	241.9	243.4	213.4	232.6	233.7	234.5	238.1	239.9	242.2
Laundry and drycleaning other than coin operated (12/77 = 100)	127.1	137.7	138.3	140.0	141.1	142.4	143.5	126.6	137.5	138.4	139.1	140.9	141.6	143.2
Other apparel services (12/77 = 100)	117.0	126.3	126.9	126.9	129.2	130.0	130.5	113.7	124.7	125.0	125.1	127.4	129.1	129.9
TRANSPORTATION	227.7	251.0	252.7	254.7	256.1	259.0	261.1	228.3	251.9	253.5	255.2	256.6	259.7	261.9
Private	227.5	250.5	251.6	253.2	254.5	257.4	259.4	228.2	251.5	252.7	254.1	255.5	258.6	260.8
New cars	171.7	179.2	181.1	181.7	181.9	184.3	184.5	171.7	180.0	181.9	182.3	182.0	184.5	184.6
Used cars	198.2	203.4	206.4	214.6	222.7	230.8	234.4	198.3	203.4	206.4	214.6	222.7	230.8	234.4
Gasoline	313.9	376.7	375.9	373.0	370.5	370.5	373.3	315.6	377.8	377.1	373.9	371.7	371.7	374.4
Automobile maintenance and repair	252.6	269.0	271.1	273.8	276.0	278.4	280.1	253.4	269.7	272.2	273.9	276.6	278.9	280.6
Body work (12/77 = 100)	123.3	131.8	133.0	133.8	135.0	136.1	136.8	123.1	131.3	132.4	133.0	134.6	135.9	136.7
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	120.6	128.1	129.0	130.9	132.7	133.6	134.0	121.8	129.9	131.5	131.8	133.9	135.0	135.6
Maintenance and servicing (12/77 = 100)	119.2	127.3	128.4	129.4	130.0	131.0	131.6	119.3	127.2	128.4	129.5	130.2	131.1	131.7
Power plant repair (12/77 = 100)	119.2	126.4	127.3	128.7	129.8	131.3	132.7	119.6	126.6	127.5	128.5	129.6	130.8	132.2
Other private transportation	207.5	224.5	224.7	226.0	226.5	228.8	231.0	208.4	226.7	226.8	227.6	228.0	230.6	233.2
Other private transportation commodities	185.6	197.7	198.3	200.9	200.9	203.1	203.6	186.4	200.1	200.6	201.9	201.4	203.4	205.7
Motor oil, coolant, and other products (12/77 = 100)	118.1	136.3	136.3	137.5	136.5	137.8	138.8	119.3	135.5	136.1	135.6	135.4	137.3	139.0
Automobile parts and equipment (12/77 = 100)	120.3	126.6	127.0	128.8	128.9	130.3	130.6	120.6	128.4	128.7	129.8	129.4	130.6	132.0
Tires	163.8	174.9	175.9	178.8	179.2	181.7	182.1	165.7	178.9	179.9	181.5	180.8	182.5	184.7
Other parts and equipment (12/77 = 100)	124.4	126.6	126.2	127.3	126.9	127.3	127.6	122.4	125.7	125.2	125.8	125.7	126.9	127.8
Other private transportation services	215.3	233.8	233.9	234.9	235.6	237.9	240.6	216.3	236.0	236.0	236.7	237.3	240.1	242.9
Automobile insurance	235.3	249.1	250.2	251.3	251.5	251.9	252.5	235.2	248.7	249.9	250.9	251.2	251.5	252.0
Automobile finance charges (12/77 = 100)	127.2	149.7	148.2	148.6	149.9	154.4	159.4	126.5	149.1	147.5	147.5	148.3	153.2	157.9
Automobile rental, registration, and other fees (12/77 = 100)	108.5	113.3	114.0	114.5	114.6	115.0	115.8	109.2	114.7	115.4	115.8	116.3	116.7	117.5
State registration	144.1	146.4	146.5	146.5	146.5	146.6	146.9	144.0	146.5	146.5	146.5	146.5	146.6	147.0
Drivers' license (12/77 = 100)	104.5	104.9	104.9	104.9	104.9	105.0	105.3	104.2	104.6	104.6	104.6	104.7	104.7	105.1
Vehicle inspection (12/77 = 100)	117.5	122.6	122.8	122.8	122.9	123.2	124.3	118.3	123.3	123.5	123.5	123.6	123.9	125.1
Other vehicle related fees (12/77 = 100)	117.6	126.8	128.3	129.8	130.0	130.7	132.7	122.2	134.6	136.6	137.8	139.1	140.0	142.0
Public	223.0	250.5	261.5	271.0	273.6	277.0	280.1	219.1	245.8	256.9	264.4	266.5	269.2	271.8
Airline fare	245.5	276.9	289.8	310.3	315.0	321.8	327.4	245.8	275.5	287.9	308.6	313.0	319.8	325.7
Intercity bus fare	282.2	294.2	297.9	304.7	307.1	308.0	310.1	282.3	293.9	298.0	304.5	306.9	308.0	309.8
Intracity mass transit	196.4	222.6	234.1	234.8	235.6	236.1	237.1	195.7	221.8	233.8	234.4	235.2	235.6	236.5
Taxi fare	238.5	263.3	266.2	266.8	267.9	269.2	269.7	243.9	269.2	273.0	273.6	274.7	275.6	275.9
Intercity train fare	236.3	255.3	255.4	255.5	255.6	255.6	270.1	236.6	255.4	255.6	255.6	255.7	255.7	270.3
MEDICAL CARE	250.7	266.6	268.4	270.6	272.8	274.5	275.8	251.7	267.8	270.0	272.2	274.3	276.3	277.6
Medical care commodities	159.2	169.1	170.2	171.3	172.5	173.8	175.1	159.9	169.7	170.8	171.8	173.0	174.1	175.6
Prescription drugs	146.4	155.6	156.4	157.5	158.5	159.6	160.7	147.4	156.6	157.4	158.5	159.5	160.2	161.5
Anti-infective drugs (12/77 = 100)	114.6	121.2	120.5	122.4	124.1	124.6	124.7	116.8	122.3	121.6	123.4	125.1	125.6	126.4
Tranquilizers and sedatives (12/77 = 100)	118.4	125.5	126.1	126.3	127.1	128.9	130.2	118.3	124.7	125.4	125.4	126.2	127.7	128.6
Circulatories and diuretics (12/77 = 100)	111.4	115.4	116.0	116.9	117.3	118.3	119.1	112.3	117.6	118.2	118.9	119.3	119.9	120.2
Hormones, diabetic drugs, biologicals, and prescription and supplies (12/77 = 100)	123.8	135.5	138.2	138.9	139.6	140.4	142.3	123.1	134.8	137.0	138.1	138.8	139.6	141.7
Pain and symptom control drugs (12/77 = 100)	117.8	124.5	125.2	125.6	126.3	126.7	126.9	118.2	126.1	127.6	128.1	128.7	128.3	129.6
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	112.1	119.3	119.9	120.5	120.4	121.2	122.4	113.7	120.9	121.2	121.8	122.1	122.3	123.1
Nonprescription drugs and medical supplies (12/77 = 100)	114.6	121.7	122.6	123.3	124.4	125.3	126.2	115.1	122.0	122.9	123.6	124.4	125.5	126.5
Eyeglasses (12/77 = 100)	110.9	118.7	119.9	120.5	121.0	121.2	120.8	110.5	117.8	118.4	119.0	119.6	120.2	120.4
Internal and respiratory over-the-counter drugs	177.9	189.1	190.4	191.2	193.5	195.8	198.1	178.5	190.1	191.6	192.4	194.0	195.8	198.0
Nonprescription medical equipment and supplies (12/77 = 100)	113.1	119.1	119.9	120.8	121.3	121.5	122.5	114.2	119.0	119.9	121.2	121.8	123.0	123.7
Medical care services	270.7	288.0	289.8	292.3	294.8	296.6	297.9	271.8	289.3	291.7	294.3	296.6	298.7	300.0
Professional services	235.9	253.5	254.7	257.3	259.0	260.4	261.7	238.3	256.1	257.8	260.4	261.9	263.8	265.0
Physicians' services	252.5	270.9	272.2	274.2	276.0	278.0	280.3	256.5	275.4	277.6	280.5	281.8	283.8	285.7
Dental services	224.5	241.1	242.2	245.8	247.5	248.0	248.6	226.1	243.0	244.5	247.3	249.0	250.4	251.3
Other professional services (12/77 = 100)	115.1	125.0	126.0	126.7	127.6	128.5	128.5	114.8	123.6	123.9	124.5	125.1	126.7	126.6
Other medical care services	312.8	329.7	332.3	334.7	338.0	340.5	341.6	313.0	329.8	333.3	335.6	339.2	341.6	342.9
Hospital and other medical services (12/77 = 100)	123.8	133.4	135.4	137.1	139.3	141.1	141.7	123.2	132.6	134.9	136.4	138.9	140.5	141.3
Hospital room	389.4	418.2	424.0	428.4	435.8	441.0	443.7	388.7	414.9	422.4	427.2	435.3	439.8	443.1
Other hospital and medical care services	122.9	132.8	135.1	137.0	139.0	140.9	141.4	122.1	132.3	134.4	136.0	138.4	140.2	140.6

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
ENTERTAINMENT	193.4	206.6	208.0	209.8	210.9	211.2	212.0	192.3	204.4	205.6	208.1	209.2	209.9	210.1
Entertainment commodities	195.2	209.3	210.8	212.8	213.7	214.5	215.3	192.4	204.8	206.4	208.6	209.0	210.2	210.9
Reading materials (12/77 = 100)	115.1	123.0	123.2	126.1	127.0	127.6	128.2	114.8	122.5	122.7	125.5	126.6	127.1	127.6
Newspapers	223.5	240.0	240.7	242.3	245.3	245.6	246.2	223.3	239.3	239.9	241.5	244.6	244.9	245.5
Magazines, periodicals, and books (12/77 = 100)	116.8	124.1	124.0	129.3	129.6	130.7	131.5	116.6	123.7	123.7	129.3	129.6	130.8	131.5
Sporting goods and equipment (12/77 = 100)	112.2	119.5	120.9	121.1	121.8	122.8	122.9	107.7	114.2	115.3	115.8	116.3	117.0	117.8
Sport vehicles (12/77 = 100)	112.9	120.7	122.2	NA	NA	NA	NA	105.8	112.5	113.5	NA	NA	NA	NA
Indoor and warm weather sport equipment (12/77 = 100)	107.5	112.4	113.5	113.8	114.5	114.7	116.2	106.3	110.6	111.7	112.1	112.5	112.2	113.4
Bicycles	167.1	181.6	183.6	184.7	185.3	185.7	184.7	167.0	181.4	183.2	184.9	185.4	185.8	184.9
Other sporting goods and equipment (12/77 = 100)	111.0	115.0	116.5	117.2	118.2	119.9	120.4	111.3	116.1	116.9	117.4	117.8	119.1	119.3
Toys, hobbies, and other entertainment (12/77 = 100)	112.1	121.0	121.8	122.6	122.8	122.8	123.5	111.8	119.1	120.3	121.3	120.9	121.6	121.8
Toys, hobbies, and music equipment (12/77 = 100)	111.2	119.0	120.4	121.4	120.9	120.7	121.3	109.9	115.9	117.8	119.0	117.4	118.4	118.5
Photographic supplies and equipment (12/77 = 100)	109.7	122.8	122.5	123.1	123.1	121.8	122.0	110.1	122.4	121.7	121.8	122.3	122.7	122.4
Pet supplies and expense (12/77 = 100)	115.5	123.2	123.9	124.4	125.8	127.3	128.4	116.1	122.9	123.8	125.2	126.4	126.8	127.6
Entertainment services	191.1	203.1	204.3	206.1	207.2	206.9	207.8	193.0	204.8	205.2	208.4	210.6	210.5	209.7
Fees for participant sports (12/77 = 100)	113.8	122.1	123.2	124.5	125.5	125.2	125.7	115.0	121.9	121.8	124.7	127.0	126.7	125.9
Admissions (12/77 = 100)	116.6	121.3	122.1	122.6	122.7	122.6	123.1	117.8	123.2	124.2	124.1	124.2	124.3	124.0
Other entertainment services (12/77 = 100)	108.6	117.4	117.4	118.3	119.0	118.7	119.4	109.0	118.8	119.1	120.8	121.6	121.6	121.8
OTHER GOODS AND SERVICES	204.0	213.5	214.5	220.6	221.5	222.8	224.6	203.0	212.9	214.0	219.0	219.9	221.0	223.0
Tobacco products	192.1	203.8	204.5	204.5	204.5	207.3	210.8	192.1	204.0	204.4	204.3	204.3	206.8	210.4
Cigarettes	194.7	206.4	207.0	206.8	206.8	209.6	213.5	194.8	206.8	207.0	206.8	206.7	209.3	213.2
Other tobacco products and smoking accessories (12/77 = 100)	113.2	120.7	122.0	122.8	123.2	124.3	124.9	112.7	120.3	121.7	122.7	123.1	123.9	124.5
Personal care	203.0	214.4	215.4	216.7	217.8	219.0	220.9	202.3	213.1	214.7	216.6	218.0	218.5	220.0
Toilet goods and personal care appliances	195.8	207.9	209.0	210.3	211.8	212.4	215.2	194.5	206.6	208.8	210.4	212.1	212.7	214.3
Products for the hair, hairpieces and wigs (12/77 = 100)	113.0	121.4	121.7	121.8	124.5	124.5	125.2	112.4	120.5	122.5	123.6	123.6	123.2	125.3
Dental and shaving products (12/77 = 100)	117.3	124.0	125.2	125.3	126.0	127.2	128.4	114.7	122.0	123.6	124.0	125.3	125.9	125.4
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	113.0	119.1	119.6	121.3	121.3	120.8	122.6	112.1	117.9	118.5	119.7	121.1	121.0	121.4
Other toilet goods and small personal care appliances (12/77 = 100)	112.1	119.4	119.9	120.8	120.8	122.2	124.8	113.1	120.4	121.5	122.1	123.6	125.3	126.8
Personal care services	210.0	220.9	221.7	223.1	223.8	225.5	226.8	210.2	219.8	220.7	222.9	224.0	224.4	225.8
Beauty parlor services for women	212.1	222.1	222.5	224.5	225.2	227.5	228.7	212.0	221.0	222.0	225.0	225.6	226.1	227.5
Haircuts and other barber shop services for men (12/77 = 100)	116.8	123.9	124.8	124.8	125.3	125.6	126.4	117.1	123.0	123.4	123.9	125.0	125.2	126.0
Personal and educational expenses	224.6	229.9	231.4	249.5	251.1	251.3	251.5	224.8	230.3	231.8	249.8	251.2	251.4	251.7
School books and supplies	202.5	207.2	207.7	221.0	221.9	221.9	222.1	206.0	210.9	211.5	224.8	225.6	225.6	225.8
Personal and educational services	229.9	235.5	237.1	256.2	257.8	258.1	258.2	229.7	235.4	237.1	256.1	257.5	257.8	258.1
Tuition and other school fees	118.1	118.7	119.4	131.6	132.2	132.2	132.2	118.2	118.8	119.5	131.8	132.4	132.4	132.4
College tuition (12/77 = 100)	117.3	118.0	118.7	130.7	131.5	131.5	131.5	117.3	118.0	118.7	130.7	131.5	131.5	131.5
Elementary and high school tuition (12/77 = 100)	120.9	120.9	122.0	134.4	134.4	134.4	134.4	120.7	120.7	121.8	134.3	134.3	134.3	134.3
Personal expenses (12/77 = 100)	117.3	129.5	130.7	130.5	132.4	133.0	133.4	116.3	127.4	128.5	129.7	131.0	131.6	132.2
Special indexes:														
Gasoline, motor oil, coolant, and other products	309.7	371.5	370.7	367.9	365.5	365.5	368.3	311.4	372.5	371.8	368.7	366.6	366.7	369.4
Insurance and finance	302.1	342.3	338.3	338.6	346.4	355.3	364.5	301.6	342.6	338.7	339.0	346.7	355.6	364.7
Utilities and public transportation	223.5	249.1	251.9	254.8	254.9	253.1	255.8	223.0	248.4	251.2	253.6	253.5	251.6	254.4
Housekeeping and home maintenance services	282.2	300.1	300.8	303.6	304.7	306.4	308.4	283.4	297.5	299.7	302.3	302.4	303.5	306.6

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

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000 - 1.250 million)			Size class C (75,000 - 385,000)			Size class D (75,000 or less)		
	1980			1980			1980			1980		
	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.
	Northeast											
EXPENDITURE CATEGORY												
All items	129.1	130.5	132.8	134.8	137.2	139.8	138.3	141.2	143.8	134.1	135.6	137.8
Food and beverages	129.5	131.0	132.8	131.0	133.7	135.8	133.4	134.7	137.7	130.4	131.5	132.8
Housing	131.2	131.8	135.2	139.7	141.9	144.6	148.4	151.0	153.7	138.7	139.9	142.0
Apparel and upkeep	112.0	116.2	114.8	113.1	116.2	116.8	113.9	124.6	124.8	115.0	118.6	120.3
Transportation	138.0	139.4	141.9	143.5	145.3	149.4	140.3	142.8	146.5	141.4	143.1	146.5
Medical care	125.1	126.3	128.0	124.4	127.2	129.3	125.0	129.1	130.1	125.2	126.9	130.7
Entertainment	118.3	120.0	120.7	121.1	122.7	123.2	118.9	120.1	120.4	124.4	125.2	126.7
Other goods and services	117.2	121.2	122.7	120.0	124.0	127.5	123.3	127.8	130.3	118.3	122.0	124.4
COMMODITY AND SERVICE GROUP												
Commodities	130.4	131.8	133.7	136.1	138.3	140.8	136.9	139.9	142.1	135.1	136.6	138.1
Commodities less food and beverages	131.0	132.3	134.3	138.5	140.5	143.2	138.6	142.3	144.1	137.3	139.1	140.7
Services	127.4	128.8	131.6	132.8	135.4	138.3	140.4	143.4	146.7	132.5	134.0	137.3
	North Central											
EXPENDITURE CATEGORY												
All items	136.8	140.8	143.3	134.7	137.6	140.0	132.9	135.1	136.6	131.7	134.6	136.2
Food and beverages	131.5	133.1	135.0	129.8	130.8	132.9	131.8	133.7	135.1	133.9	135.8	139.1
Housing	145.4	151.9	155.3	139.4	143.7	146.0	135.3	137.9	139.1	131.5	135.3	135.9
Apparel and upkeep	109.0	112.1	110.8	112.9	118.2	118.8	112.0	115.3	114.8	113.6	115.5	116.2
Transportation	141.0	143.2	146.4	141.3	143.0	146.8	141.6	142.9	146.2	140.4	142.2	145.4
Medical care	127.8	129.1	130.5	128.8	129.6	131.4	129.1	130.6	132.4	133.7	133.3	134.6
Entertainment	122.4	124.5	125.1	118.6	121.1	121.3	122.7	124.3	124.0	116.9	121.1	120.8
Other goods and services	118.6	122.6	124.2	124.4	128.4	130.3	118.8	122.5	123.9	122.9	128.4	129.8
COMMODITY AND SERVICE GROUP												
Commodities	134.5	138.1	139.9	132.4	135.0	136.5	131.9	133.9	135.2	129.8	132.6	133.4
Commodities less food and beverages	135.9	140.4	142.3	133.4	136.8	138.0	131.9	134.0	135.3	128.0	131.2	130.9
Services	140.3	144.9	148.4	138.4	141.8	145.6	134.5	137.1	138.9	134.8	137.7	140.6
	South											
EXPENDITURE CATEGORY												
All items	134.8	136.7	139.0	135.4	138.1	140.9	133.7	136.1	138.6	131.9	134.1	136.5
Food and beverages	132.3	134.6	136.8	131.3	133.0	135.4	132.8	134.8	137.2	132.4	134.5	136.9
Housing	138.2	139.8	143.1	140.5	143.5	146.7	137.1	139.7	142.5	132.4	133.7	137.5
Apparel and upkeep	116.7	119.9	120.0	114.1	116.4	117.3	109.4	111.8	114.1	105.6	110.5	108.9
Transportation	143.5	145.0	146.8	142.0	144.5	147.9	141.1	143.0	145.7	140.4	142.2	144.8
Medical care	125.4	126.8	127.9	127.5	130.9	132.1	128.8	132.7	133.7	133.9	140.2	140.7
Entertainment	119.5	120.2	120.4	124.0	125.3	127.9	122.0	125.0	127.5	130.5	132.4	130.7
Other goods and services	122.3	126.4	128.1	121.3	126.8	128.8	121.6	124.7	126.7	125.1	128.2	129.9
COMMODITY AND SERVICE GROUP												
Commodities	133.1	135.4	137.2	132.7	135.2	137.5	131.9	134.1	136.3	131.3	133.4	135.6
Commodities less food and beverages	133.5	135.8	137.3	133.3	136.1	138.3	131.5	133.8	135.9	130.9	133.0	135.0
Services	137.1	138.4	141.5	139.5	142.6	146.1	136.4	139.2	142.3	132.7	135.0	138.0
	West											
EXPENDITURE CATEGORY												
All items	135.5	137.7	140.7	136.8	139.5	141.4	134.2	136.3	138.4	135.4	136.9	139.8
Food and beverages	130.5	132.7	134.3	133.1	135.0	136.5	129.5	131.7	132.7	132.9	135.6	137.3
Housing	139.2	141.6	146.0	140.9	144.7	146.7	137.2	139.4	142.1	135.6	136.2	140.6
Apparel and upkeep	116.4	117.9	117.9	119.5	121.5	123.8	108.5	111.2	112.0	126.3	129.1	129.0
Transportation	142.8	144.9	146.7	142.4	144.3	146.6	143.6	145.9	148.5	143.5	145.9	148.0
Medical care	130.6	133.0	134.3	129.0	130.7	133.1	132.2	133.3	134.5	134.1	134.9	136.6
Entertainment	120.8	122.3	123.8	125.9	125.7	125.0	125.2	126.9	126.3	131.5	131.2	133.5
Other goods and services	122.8	126.2	127.7	125.7	128.1	129.0	120.2	122.3	125.2	124.5	128.1	130.4
COMMODITY AND SERVICE GROUP												
Commodities	132.3	134.2	135.3	134.6	136.3	137.5	132.2	134.1	135.2	134.1	135.7	137.2
Commodities less food and beverage	133.1	134.8	135.7	135.2	136.8	138.0	133.3	135.1	136.2	134.6	135.7	137.1
Services	139.7	142.5	147.8	140.0	144.0	146.7	137.1	139.5	142.9	137.3	138.7	143.8

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

[1967=100 unless otherwise specified]

Area[1]	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979	1980						1979	1980					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
U.S. city average[2]	229.9	247.8	249.4	251.7	253.9	256.2	258.4	230.0	248.0	249.6	251.9	254.1	256.4	258.7
Anchorage, Alaska (10/67=100)	...	228.4	...	230.9	...	236.5	...	...	224.8	...	226.7	...	232.0	...
Atlanta, Ga.	223.3	...	246.5	...	250.2	...	258.3	227.0	...	249.7	...	252.4	...	260.3
Baltimore, Md.	...	252.4	...	255.0	...	258.4	...	...	250.8	...	253.2	...	257.4	...
Boston, Mass.	...	240.9	...	244.4	...	248.8	...	...	240.9	...	244.5	...	249.2	...
Buffalo, N.Y.	221.2	...	236.8	...	239.6	...	246.5	220.7	...	235.5	...	238.2	...	245.2
Chicago, Ill.-Northwestern Ind.	228.4	246.8	245.2	250.1	253.7	259.9	260.3	227.8	247.0	245.4	249.5	252.8	258.9	258.9
Cincinnati, Ohio-Ky.-Ind.	...	256.7	...	259.9	...	262.1	...	...	259.1	...	261.7	...	236.5	...
Cleveland, Ohio	232.5	...	253.9	...	264.6	...	266.5	233.2	...	254.4	...	264.2	...	266.7
Dallas-Ft. Worth, Tex.	234.1	...	258.5	...	264.9	...	269.5	233.3	...	257.4	...	262.9	...	268.2
Denver-Boulder, Colo.	...	261.6	...	266.6	...	271.9	...	...	265.8	...	270.9	...	276.7	...
Detroit, Mich.	233.2	253.7	255.1	259.5	264.3	266.4	269.7	232.2	252.1	253.8	257.7	261.4	263.6	265.5
Honolulu, Hawaii	214.8	...	230.1	...	234.6	...	236.1	215.5	...	229.5	...	233.5	...	237.0
Houston, Tex.	248.7	...	268.6	...	272.3	...	274.8	246.0	...	265.6	...	269.4	...	272.1
Kansas City, Mo.-Kansas	233.7	...	250.8	...	254.8	...	259.1	232.4	...	249.3	...	253.0	...	257.2
Los Angeles-Long Beach, Anaheim, Calif.	228.0	248.7	247.3	249.6	252.6	255.5	258.7	229.9	251.5	250.1	252.0	254.9	258.4	262.2
Miami, Fla. (11/77=100)	...	133.6	...	133.1	...	133.9	...	...	134.7	...	134.9	...	135.6	...
Milwaukee, Wis.	...	251.6	...	258.4	...	262.1	...	...	255.9	...	263.2	...	267.5	...
Minneapolis-St. Paul, Minn.-Wis.	234.0	...	250.1	...	255.5	...	259.0	234.8	...	250.6	...	256.6	...	260.6
New York, N.Y.-Northeastern N.J.	222.9	238.9	240.8	241.8	243.1	244.7	247.3	222.4	238.4	240.7	241.5	242.6	244.2	247.2
Northeast, Pa. (Scranton)	...	239.8	...	243.1	...	247.0	...	...	243.2	...	246.9	...	249.5	...
Philadelphia, Pa.-N.J.	223.7	244.1	246.0	247.2	247.9	249.2	250.5	224.6	245.3	247.3	248.3	249.5	251.1	252.3
Pittsburgh, Pa.	229.2	...	250.7	...	256.3	...	262.0	229.7	...	251.2	...	257.6	...	262.9
Portland, Oreg.-Wash.	...	252.7	...	256.9	...	261.9	...	...	252.2	...	255.4	...	260.7	...
St. Louis, Mo.-Ill.	...	245.0	...	252.4	...	253.8	...	...	245.9	...	252.7	...	254.2	...
San Diego, Calif.	...	269.9	...	271.8	...	279.1	...	...	265.7	...	267.7	...	275.1	...
San Francisco-Oakland, Calif.	230.2	...	251.0	...	251.9	...	254.9	229.0	...	251.4	...	252.6	...	255.7
Seattle-Everett, Wash.	...	255.1	...	258.1	...	262.6	...	...	251.6	...	254.6	...	259.4	...
Washington, D.C.-Md.-Va.	...	247.2	...	249.2	...	253.6	...	...	248.7	...	251.8	...	255.7	...

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

[2] Average of 85 cities.

26. Producer Price Indexes, by stage of processing

[1967=100]

Commodity grouping	Annual average 1980	1980												1981
		Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
FINISHED GOODS														
Finished goods	246.8	234.4	237.7	240.0	242.1	243.4	244.9	249.3	251.4	251.4	254.7	255.6	256.9	259.8
Finished consumer goods	248.8	235.8	239.7	242.2	243.7	245.2	246.8	251.7	254.1	254.1	256.5	257.4	258.6	261.4
Finished consumer foods	239.4	231.8	232.1	233.6	230.1	231.9	233.0	241.6	246.5	247.4	247.4	248.5	248.8	250.6
Crude	237.1	225.9	221.2	230.6	224.1	229.1	224.5	240.9	247.0	259.8	237.5	250.4	254.6	257.3
Processed	237.7	230.4	231.2	232.0	228.8	230.3	231.8	239.7	244.4	244.3	246.3	246.3	246.3	247.9
Nondurable goods less foods	283.9	260.4	268.6	275.6	281.5	284.2	285.9	288.4	290.0	290.9	291.5	293.8	296.0	301.1
Durable goods	205.9	200.1	202.6	200.8	202.3	201.9	204.1	207.5	208.1	206.2	213.0	212.3	213.0	213.8
Consumer nondurable goods less food and energy	192.1	203.4	205.7	207.4	209.9	211.1	212.7	214.7	215.9	216.6	217.7	219.1	219.9	223.2
Capital equipment	239.5	229.1	230.5	232.2	236.2	236.7	237.8	240.6	241.9	241.8	248.1	248.9	250.8	253.9
INTERMEDIATE MATERIALS														
Intermediate materials, supplies, and components	280.1	266.2	271.9	274.3	275.7	277.0	278.8	281.6	284.3	285.3	286.9	288.6	291.7	295.5
Materials and components for manufacturing	265.5	255.3	259.6	259.6	260.6	262.5	264.3	265.6	268.9	269.5	272.1	273.5	275.5	278.7
Materials for food manufacturing	263.7	232.3	248.1	243.8	241.5	255.3	259.7	264.4	277.9	275.8	292.7	296.2	277.0	277.9
Materials for nondurable manufacturing	259.5	245.4	248.6	252.4	258.1	260.4	261.0	261.7	263.4	263.2	264.4	266.9	268.4	273.4
Materials for durable manufacturing	301.0	304.8	308.4	302.3	296.1	294.1	297.0	297.3	299.2	300.5	304.3	304.1	304.2	306.9
Components for manufacturing	231.4	219.7	222.4	224.7	227.6	229.0	230.3	232.4	235.6	237.0	236.4	237.4	246.4	249.0
Materials and components for construction	268.2	258.0	262.5	265.9	265.5	265.2	266.9	269.6	271.4	271.7	272.0	273.7	276.4	279.2
Processed fuels and lubricants	502.7	450.0	471.1	489.8	496.6	498.2	502.0	514.2	517.4	519.5	515.9	519.8	538.7	551.4
Manufacturing industries	425.3	385.4	399.2	411.2	415.2	420.9	425.4	431.0	436.0	440.8	440.2	442.4	456.8	468.8
Nonmanufacturing industries	570.7	508.0	534.5	557.9	566.7	565.9	569.6	586.1	588.4	588.9	583.3	588.5	610.9	624.2
Containers	254.5	244.8	245.7	247.4	253.2	254.4	256.2	257.0	257.4	257.9	259.6	259.6	261.1	264.7
Supplies	244.5	230.9	237.3	239.4	239.7	240.0	241.2	245.3	247.7	250.3	252.1	254.9	254.9	257.3
Manufacturing industries	231.8	220.6	222.8	225.5	229.0	230.5	232.8	234.2	235.4	236.1	237.3	238.4	239.5	242.2
Nonmanufacturing industries	251.1	236.3	244.8	246.6	245.4	245.0	245.7	251.1	254.1	257.6	259.8	263.5	262.8	265.1
Feeds	229.2	221.9	222.2	218.8	205.2	207.5	205.1	225.2	234.7	246.8	250.8	259.6	251.8	252.2
Other supplies	253.5	236.9	247.5	250.7	253.0	251.9	253.4	254.7	255.8	256.9	258.6	260.8	262.1	264.9
CRUDE MATERIALS														
Crude materials for further processing	304.2	287.8	298.5	293.6	286.2	289.3	288.4	304.3	317.0	319.3	322.6	323.2	320.8	321.3
Foodstuffs and feedstuffs	259.1	243.6	253.1	246.5	235.8	243.0	243.0	263.4	276.8	276.6	279.0	277.3	271.6	270.6
Nonfood materials	399.9	381.6	394.7	393.8	393.4	387.5	384.6	390.8	401.9	409.8	414.7	420.3	425.2	428.7
Nonfood materials except fuel	344.5	334.9	346.0	344.9	342.0	333.3	328.9	333.9	344.8	351.4	355.1	358.4	363.1	365.8
Manufacturing industries	355.8	346.3	358.3	356.9	353.5	343.8	338.9	343.9	355.4	362.6	366.6	370.0	375.1	377.5
Construction	237.2	226.0	228.7	229.9	232.4	232.8	234.1	239.1	243.7	244.8	245.3	247.5	247.8	254.3
Crude fuel	614.9	559.0	579.8	579.8	591.4	600.0	604.0	615.1	626.3	639.1	649.5	665.1	670.3	677.6
Manufacturing industries	690.2	616.7	645.0	644.3	659.0	670.3	675.7	690.5	705.4	722.0	736.1	755.9	763.0	772.2
Nonmanufacturing industries	566.9	524.3	539.5	540.0	549.3	555.9	558.8	567.1	575.5	585.4	592.8	605.4	609.1	614.9
SPECIAL GROUPINGS														
Finished goods excluding foods	247.7	233.7	238.0	240.6	244.5	245.6	247.3	250.2	251.4	251.1	255.5	256.3	258.0	261.2
Finished consumer goods excluding foods	248.5	232.5	238.1	241.0	244.9	246.2	248.1	251.0	252.2	251.8	255.2	256.1	257.6	260.9
Finished consumer goods less energy	216.9	211.8	213.4	213.9	214.0	214.9	216.5	221.2	223.5	223.5	226.0	226.6	227.2	229.3
Intermediate materials less foods and feeds	281.3	268.1	273.4	276.3	278.3	278.8	280.6	282.9	285.0	285.8	286.6	288.1	292.5	296.6
Intermediate materials less energy	265.8	255.0	259.3	260.3	261.1	262.3	263.9	265.9	268.7	269.5	271.7	273.3	275.1	278.1
Intermediate foods and feeds	252.2	228.3	239.3	235.3	229.5	239.7	242.0	251.4	263.7	265.9	278.8	283.9	268.3	269.0
Crude materials less agricultural products	480.3	398.5	411.4	411.1	409.8	402.7	401.2	406.9	418.5	425.1	433.2	438.3	442.1	447.5
Crude materials less energy	256.7	246.9	257.7	251.5	241.3	243.7	241.6	258.9	271.4	272.8	275.2	274.7	270.4	268.8

[1] Data for August 1980 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

[2] Not available.

r=revised.

NOTE: Figures in this table may differ from those previously reported because stage-of-processing indexes from January 1976 through December 1980 have been revised to reflect 1972 input-output relationships.

27. Producer Price Indexes, by commodity groupings

[1967=100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980											1979
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
	All commodities	268.6	254.9	260.2	261.9	262.8	264.2	265.6	270.4	273.8	r274.6	277.0	278.4	280.3	283.5
	All commodities (1957-59 = 100)	285.0	270.2	275.6	277.4	278.8	280.3	281.8	286.9	290.5	r291.4	293.9	295.4	297.4	300.8
	Farm products and processed foods and feeds	244.6	231.9	237.0	234.9	229.3	233.8	234.3	246.6	255.1	r256.5	258.8	260.1	256.5	257.3
	Industrial commodities	274.5	260.6	265.9	268.6	271.3	271.9	273.5	276.2	278.2	r278.8	281.2	282.7	286.1	289.9
	FARM PRODUCTS AND PROCESSED FOODS AND FEEDS														
01	Farm products	249.3	236.4	242.3	239.3	228.9	233.5	233.4	254.3	263.8	r267.0	263.4	264.9	265.3	264.4
01-1	Fresh and dried fruits and vegetables	238.5	219.0	220.6	218.5	223.2	244.0	233.5	252.0	254.0	r266.2	240.4	246.4	244.7	257.7
01-2	Grains	239.0	214.6	223.3	217.9	210.8	219.0	215.3	244.8	256.5	260.6	269.2	270.9	265.2	277.7
01-3	Livestock	252.7	247.8	257.2	251.8	230.5	233.3	240.0	260.5	275.7	266.8	263.0	254.8	251.4	244.3
01-4	Live poultry	202.1	195.2	184.6	180.1	171.9	171.3	166.6	227.2	224.5	241.0	222.9	221.0	218.9	213.1
01-5	Plant and animal fibers	271.1	239.0	269.5	254.9	266.9	272.7	247.0	267.0	280.8	295.2	278.5	287.2	294.1	284.1
01-6	Fluid milk	271.2	262.3	263.8	263.1	265.4	265.4	265.5	265.8	271.6	275.5	280.9	284.7	290.5	288.4
01-7	Eggs	171.0	165.6	150.4	184.2	153.3	140.5	146.8	159.3	176.9	188.4	175.2	194.0	217.5	185.7
01-8	Hay, hayseeds, and oilseeds	247.1	218.1	224.7	215.9	205.1	206.9	207.4	251.4	261.5	280.7	284.4	298.3	310.2	311.8
01-9	Other farm products	298.1	301.1	304.7	311.5	304.8	311.0	309.4	292.4	282.7	r292.0	282.9	296.6	296.0	296.1
02	Processed foods and feeds	241.0	228.5	233.1	231.6	228.6	233.1	233.9	241.5	249.4	249.8	255.4	256.5	250.8	252.4
02-1	Cereal and bakery products	235.9	225.4	229.9	231.8	232.4	234.7	233.2	234.7	235.8	r238.3	241.3	245.4	248.5	250.8
02-2	Meats, poultry, and fish	243.0	239.6	239.6	239.2	226.0	224.5	226.6	248.5	259.9	r257.8	255.8	250.8	248.0	248.8
02-3	Dairy products	230.7	221.0	220.8	223.0	227.5	228.5	229.5	230.1	232.6	r233.7	238.4	240.6	242.7	245.2
02-4	Processed fruits and vegetables	228.9	222.9	223.3	223.7	224.6	225.4	227.2	229.8	230.7	r231.3	234.5	235.2	237.1	237.4
02-5	Sugar and confectionery	321.2	235.0	287.5	264.1	275.0	327.8	325.4	313.5	347.1	341.4	399.9	403.4	334.6	338.6
02-6	Beverages and beverage materials	232.4	224.0	224.8	225.9	227.9	231.2	234.3	234.6	237.1	r236.1	236.7	238.1	238.1	240.4
02-7	Fats and oils	226.8	225.1	226.4	222.6	214.5	212.0	212.8	226.9	240.2	r238.3	231.1	237.9	234.3	230.4
02-8	Miscellaneous processed foods	227.2	225.4	223.5	224.7	225.1	223.7	223.4	223.5	224.0	r226.8	230.6	235.0	240.5	244.2
02-9	Manufactured animal feeds	226.9	219.7	219.8	216.6	205.0	207.2	205.0	223.9	232.4	r243.4	247.2	254.9	247.3	247.9
	INDUSTRIAL COMMODITIES														
03	Textile products and apparel	183.4	175.2	176.5	179.3	181.2	182.0	183.0	184.7	185.6	r186.6	187.8	189.3	190.2	192.4
03-1	Synthetic fibers (12/75 = 100)	134.8	127.0	127.2	129.1	130.4	133.2	134.5	136.0	137.5	r139.5	140.9	141.4	141.5	147.3
03-2	Processed yarns and threads (12/75 = 100)	122.2	114.6	118.0	119.3	122.1	124.2	122.8	122.4	123.2	r124.3	124.2	124.9	127.6	129.2
03-3	Gray fabrics (12/75 = 100)	137.7	132.7	132.3	136.8	137.0	136.5	134.8	135.7	137.5	r141.0	142.5	144.3	143.3	142.8
03-4	Finished fabrics (12/75 = 100)	115.7	110.5	111.1	113.2	114.5	115.3	115.8	116.6	116.8	r117.0	118.2	119.0	120.0	121.5
03-81	Apparel	172.2	165.5	166.8	168.0	170.0	170.2	172.7	174.4	175.1	r175.0	175.5	176.0	177.0	178.6
03-82	Textile housefurnishings	208.3	199.0	199.7	201.3	201.6	202.6	202.7	210.7	211.0	r212.9	218.0	218.0	218.5	223.9
04	Hides, skins, leather, and related products	248.6	255.7	250.9	246.8	243.5	240.7	240.9	245.1	251.3	247.8	247.3	255.5	256.6	258.5
04-1	Hides and skins	370.9	468.8	404.8	348.7	328.6	289.7	315.7	356.6	398.4	r356.1	381.5	409.1	392.8	377.8
04-2	Leather	311.6	347.6	340.3	311.0	297.6	290.4	284.4	292.2	314.2	r298.1	272.5	317.3	332.4	332.6
04-3	Footwear	233.2	229.1	228.0	231.8	231.9	231.9	231.9	232.7	233.7	r235.5	236.8	237.7	237.1	238.6
04-4	Other leather and related products	218.1	213.1	214.8	217.8	216.2	217.4	215.9	217.5	218.7	r218.8	221.9	222.6	223.5	230.7
05	Fuels and related products and power	573.4	508.0	532.7	553.5	566.6	572.1	576.5	585.5	590.6	r593.5	592.5	597.6	611.7	625.9
05-1	Coal	467.5	459.3	459.6	461.7	465.2	466.5	466.6	467.5	468.7	r471.3	471.0	475.7	475.7	477.5
05-2	Coke	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
05-3	Gas fuels[1]	160.4	677.5	716.6	716.6	730.1	745.1	749.2	762.1	772.6	r786.2	801.1	826.5	841.8	857.9
05-4	Electric power	321.6	290.5	299.3	305.5	310.1	316.5	326.0	331.1	333.6	r338.3	337.6	332.0	337.9	341.7
05-61	Crude petroleum[2]	551.7	513.6	515.1	522.8	533.9	540.1	549.0	551.4	566.8	r571.3	579.6	580.7	596.0	615.2
05-7	Petroleum products, refined[3]	674.4	583.3	620.4	659.0	678.0	680.9	681.7	693.9	697.6	r696.4	689.6	696.8	716.3	736.0
06	Chemicals and allied products	260.2	246.0	248.7	252.8	259.8	262.5	262.8	263.3	264.4	r263.4	264.6	266.9	267.9	273.6
06-1	Industrial chemicals[4]	323.8	302.9	307.9	313.3	322.1	328.5	329.5	328.7	330.0	r327.5	329.0	333.4	334.6	342.8
06-21	Prepared paint	235.4	223.3	223.3	228.7	231.5	238.8	238.8	238.8	238.8	r239.3	239.6	241.7	241.7	243.3
06-22	Paint materials	273.8	259.9	263.4	267.5	272.1	273.9	275.0	277.2	278.4	278.9	279.5	279.5	280.9	283.1
06-3	Drugs and pharmaceuticals	174.4	166.5	167.6	168.9	172.6	172.8	174.4	175.7	176.1	r176.8	178.3	181.1	181.8	184.7
06-4	Fats and oils, inedible	297.9	325.6	302.2	299.9	298.2	294.7	255.8	260.0	307.6	304.5	302.0	308.2	316.0	310.6
06-5	Agricultural chemicals and chemical products	256.9	241.9	248.0	256.1	258.5	258.5	257.6	258.7	260.0	r260.6	260.0	260.4	262.8	265.8
06-6	Plastic resins and materials	279.4	270.4	272.1	274.5	287.6	288.4	287.6	285.7	281.5	r276.5	276.7	277.1	274.4	275.2
06-7	Other chemicals and allied products	224.6	209.4	211.3	215.0	223.1	224.8	226.9	228.5	229.0	r229.1	231.3	232.6	234.2	244.1
07	Rubber and plastic products	217.3	207.8	210.7	212.7	214.1	215.0	217.3	218.8	220.5	r222.0	222.7	223.0	223.5	224.9
07-1	Rubber and rubber products	237.7	226.1	231.5	231.5	233.4	234.7	236.8	239.0	240.2	r242.6	245.4	245.8	245.9	246.9
07-11	Crude rubber	263.9	252.7	263.9	255.8	264.7	263.9	264.1	263.4	264.3	r267.3	270.7	270.0	267.5	278.0
07-12	Tires and tubes	236.6	225.1	231.6	231.6	231.8	233.2	235.6	238.0	238.0	r242.1	244.7	244.7	244.7	240.5
07-13	Miscellaneous rubber products	227.6	215.9	217.8	220.6	222.1	224.0	226.4	229.3	232.0	r232.1	234.8	236.1	237.1	241.1
07-2	Plastic products (6/78 = 100)	120.9	116.3	116.7	119.0	119.7	119.9	121.4	122.0	123.2	r123.7	123.0	123.1	123.6	124.7
08	Lumber and wood products	288.8	290.0	294.7	294.9	275.6	272.1	279.8	289.2	296.1	r292.2	288.7	293.4	299.4	296.6
08-1	Lumber	325.6	336.3	341.4	340.6	310.1	301.4	313.0	327.2	333.7	r328.0	319.2	325.0	333.0	331.6
08-2	Millwork	260.5	254.1	258.0	262.2	257.5	251.8	253.0	255.9	260.3	264.5	265.4	270.0	273.3	273.6
08-3	Plywood	246.6	238.2	243.4	240.0	219.8	230.6	241.7	252.8	266.0	r252.6	253.1	256.6	263.5	251.1
08-4	Other wood products	239.1	242.2	243.4	243.1	241.7	240.7	238.7	236.9	236.2	236.8	236.7	236.6	236.2	238.5

See footnotes at end of table.

27. Continued—Producer Price Indexes, by commodity groupings

[1967=100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980											1981
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
	INDUSTRIAL COMMODITIES—Continued														
09	Pulp, paper, and allied products	249.3	237.4	239.2	242.6	247.8	249.2	251.1	251.7	252.4	r252.8	254.4	255.5	257.4	262.0
09-1	Pulp, paper, and products, excluding building paper and board	250.7	239.2	240.8	244.1	249.4	250.6	252.4	252.9	253.8	254.1	255.8	256.7	258.6	261.0
09-11	Woodpulp	381.1	356.6	356.4	356.8	385.6	385.6	387.7	388.3	388.3	r388.2	392.1	392.6	392.6	392.6
09-12	Wastepaper	208.5	222.9	223.4	224.9	242.5	226.1	206.6	194.0	193.8	192.5	192.8	191.7	190.8	191.5
09-13	Paper	256.9	245.5	247.2	250.3	253.5	256.1	257.9	258.2	258.6	r258.7	262.5	264.4	269.8	271.0
09-14	Paperboard	235.0	221.8	223.7	227.4	232.1	235.5	238.9	237.1	238.4	r239.5	241.0	243.2	241.1	251.0
09-15	Converted paper and paperboard products	238.6	227.7	229.5	233.0	236.7	237.6	239.8	241.2	242.3	r242.7	243.4	243.8	245.2	247.0
09-2	Building paper and board	206.0	186.2	191.7	198.7	201.3	206.8	208.9	211.8	210.3	r210.2	212.1	215.6	219.1	219.1
10	Metals and metal products	286.2	284.6	288.9	286.8	284.4	281.8	281.9	282.5	285.1	r287.3	290.4	290.7	290.7	293.6
10-1	Iron and steel	305.1	297.4	300.3	301.8	307.2	304.8	303.4	300.6	302.6	r304.5	310.4	312.5	316.0	322.8
10-13	Steel mill products	302.7	293.6	294.2	295.5	304.1	305.5	305.8	301.0	301.0	301.0	307.5	309.5	313.4	322.7
10-2	Nonferrous metals	304.2	326.3	337.7	321.4	298.3	289.7	288.8	292.6	298.4	r302.2	303.9	301.0	294.4	290.6
10-3	Metal containers	298.6	283.3	284.4	288.5	304.1	302.7	302.7	303.0	303.2	303.2	304.4	303.3	303.3	311.4
10-4	Hardware	240.1	228.2	230.4	231.5	237.3	238.4	240.5	242.6	243.3	r245.9	245.8	247.9	249.6	252.5
10-5	Plumbing fixtures and brass fittings	246.6	232.8	236.7	242.4	243.8	247.5	248.6	249.7	250.4	r250.6	250.6	251.8	254.4	255.5
10-6	Heating equipment	206.2	199.5	202.6	202.6	204.2	204.0	205.0	296.2	208.0	208.8	210.0	211.2	212.6	215.4
10-7	Fabricated structural metal products	270.4	258.9	259.7	265.1	269.1	269.9	270.1	272.2	273.0	r274.1	276.2	277.6	279.2	283.0
10-8	Miscellaneous metal products	250.2	240.6	241.6	244.2	246.1	246.7	250.4	251.1	253.2	r255.0	257.1	257.7	258.4	261.3
11	Machinery and equipment	239.6	227.6	230.2	232.5	236.4	237.6	239.2	241.5	242.6	r244.7	246.4	247.7	249.5	252.7
11-1	Agricultural machinery and equipment	258.1	248.4	249.9	252.0	254.4	256.4	257.1	258.6	259.9	r263.9	262.8	266.1	269.5	273.5
11-2	Construction machinery and equipment	289.2	276.0	278.3	279.5	284.2	285.9	287.6	291.5	293.4	r295.7	298.4	299.7	301.1	304.9
11-3	Metalworking machinery and equipment	274.3	258.9	261.8	264.1	270.2	272.9	275.4	278.0	278.8	280.2	282.2	283.7	285.6	289.3
11-4	General purpose machinery and equipment	264.3	251.0	253.3	256.7	261.1	262.8	264.8	266.1	267.0	r270.0	271.9	273.2	275.2	278.2
11-6	Special industry machinery and equipment	275.9	260.6	263.2	265.5	271.9	273.0	274.3	276.7	277.1	r283.0	286.2	287.9	291.2	295.3
11-7	Electrical machinery and equipment	201.7	190.6	194.3	196.5	198.9	199.9	201.6	203.7	205.0	206.0	207.0	207.4	208.9	211.9
11-9	Miscellaneous machinery	229.8	220.3	221.1	223.2	227.2	227.3	228.2	231.1	232.1	r233.6	236.1	238.1	239.2	241.8
12	Furniture and household durables	187.3	183.4	185.6	185.7	184.4	185.4	186.5	188.0	188.9	r189.5	189.1	190.4	192.3	193.2
12-1	Household furniture	204.2	197.4	198.5	198.9	200.3	203.0	204.0	206.5	208.0	r208.5	207.7	209.1	210.4	211.3
12-2	Commercial furniture	235.9	226.9	231.4	232.8	233.6	233.9	235.5	237.2	237.3	r237.8	241.2	241.5	242.4	246.1
12-3	Floor coverings	163.0	159.0	158.5	160.8	162.2	161.9	162.1	163.2	163.8	163.9	164.5	165.7	170.2	172.3
12-4	Household appliances	173.8	166.5	168.9	169.9	171.1	173.2	175.5	175.8	176.3	r177.2	176.6	177.2	178.2	181.0
12-5	Home electronic equipment	91.0	91.0	91.2	91.3	91.4	92.0	91.8	91.7	91.3	r91.6	88.9	91.1	91.0	91.0
12-6	Other household durable goods	277.7	287.4	295.3	288.3	267.3	265.6	266.5	271.5	275.9	r276.2	277.8	278.4	285.1	278.3
13	Nonmetallic mineral products	282.8	268.4	274.0	276.5	283.7	284.0	283.4	284.8	286.0	r286.8	287.8	288.4	290.7	296.3
13-11	Flat glass	196.5	191.0	191.0	191.4	195.3	195.3	193.6	194.3	199.5	199.7	200.7	203.1	203.0	203.9
13-2	Concrete ingredients	273.4	265.0	266.6	267.5	271.7	272.4	273.2	275.9	278.6	r278.9	277.8	278.5	278.7	287.5
13-3	Concrete products	273.9	265.4	266.7	269.1	272.9	275.2	275.8	275.9	276.0	r277.3	276.9	277.6	277.8	285.6
13-4	Structural clay products excluding refractories	231.5	229.6	231.0	231.4	235.0	230.0	230.1	230.1	229.7	r230.1	233.4	233.6	234.1	240.0
13-5	Refractories	264.9	248.5	251.1	253.9	261.7	264.4	265.8	268.7	270.6	r270.6	274.1	274.1	274.1	283.5
13-6	Asphalt roofing	396.7	356.6	372.5	388.8	408.9	401.1	400.9	413.8	411.2	r407.9	408.4	396.9	394.5	404.1
13-7	Gypsum products	256.3	255.4	262.2	267.6	264.0	256.5	257.1	253.1	251.8	251.8	249.5	253.3	252.7	259.6
13-8	Glass containers	292.7	274.3	274.3	274.3	294.3	294.3	294.3	294.3	294.3	294.6	305.0	306.5	311.5	311.5
13-9	Other nonmetallic minerals	394.0	351.8	381.7	387.0	399.6	400.7	394.8	396.9	397.1	400.7	400.6	402.0	415.7	417.9
14	Transportation equipment (12/68 = 100)	206.6	198.7	198.2	198.8	203.2	202.5	203.1	206.2	208.8	r204.4	215.8	216.0	224.1	226.4
14-1	Motor vehicles and equipment	208.7	200.7	200.1	200.7	205.4	204.5	205.2	208.6	211.7	r205.6	217.8	218.0	225.9	228.5
14-4	Railroad equipment	313.0	297.5	299.3	302.1	309.9	310.5	312.2	316.4	318.0	r320.0	323.3	323.6	323.6	327.8
15	Miscellaneous products	258.7	242.9	262.9	256.1	252.8	251.7	258.0	261.7	260.1	r265.1	265.0	263.8	265.4	263.0
15-1	Toys, sporting goods, small arms, ammunition	198.4	190.9	193.5	194.5	195.4	196.0	197.5	200.2	201.3	r202.3	202.0	202.8	205.6	207.8
15-2	Tobacco products	245.5	236.6	237.2	237.3	238.1	247.7	248.1	248.2	248.2	r248.2	248.9	253.9	254.2	254.3
15-3	Notions	217.2	203.1	203.2	207.2	216.8	217.0	217.0	221.7	223.8	223.9	224.0	224.1	225.0	227.0
15-4	Photographic equipment and supplies	203.0	165.9	218.6	219.1	212.3	199.6	201.7	201.6	200.9	r200.9	201.2	207.1	207.0	207.3
15-51	Mobile homes (12/74 = 100)	149.9	144.7	146.8	147.1	149.4	150.4	150.6	151.2	151.4	r151.7	152.0	152.0	152.4	152.3
15-9	Other miscellaneous products	363.3	351.6	378.3	351.3	340.9	340.2	360.2	370.9	364.6	r381.9	381.0	368.2	371.5	359.5

[1] Data for September 1980 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

[2] Prices for natural gas are lagged 1 month.

[3] Includes only domestic production.

[4] Most prices for refined petroleum products are lagged 1 month.

[5] Some prices for industrial chemicals are lagged 1 month.

r=revised.

28. Producer Price Indexes, for special commodity groupings

[1967=100 unless otherwise specified]

Commodity grouping	Annual average 1980	1980												1981
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
All commodities—less farm products	269.4	255.7	260.9	262.9	264.8	265.9	267.5	270.9	273.8	r274.3	277.3	278.7	280.7	284.2
All foods	244.5	231.2	235.8	234.8	231.9	237.3	237.7	245.9	254.1	r254.3	258.3	259.3	253.9	255.1
Processed foods	246.6	233.3	238.6	236.9	234.1	239.0	239.9	247.3	255.7	r254.9	261.2	261.4	255.1	256.4
Industrial commodities less fuels	243.4	234.7	238.0	238.9	240.5	240.6	242.0	243.9	245.6	r246.0	248.8	249.8	252.2	255.0
Selected textile mill products (Dec. 1975 = 100)	124.4	118.9	119.3	121.3	122.2	122.9	123.7	125.5	126.0	r126.6	127.9	128.5	129.6	131.8
Hosiery	123.3	119.2	119.4	120.3	121.1	121.5	122.2	123.5	125.9	r126.4	126.4	126.7	126.7	129.2
Underwear and nightwear	185.5	175.3	177.4	182.1	182.4	182.8	187.1	188.3	189.3	r189.5	189.9	190.5	190.9	199.5
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	250.7	236.3	239.2	243.2	250.0	252.8	253.8	254.2	254.7	r254.0	255.3	257.3	258.2	264.2
Pharmaceutical preparations	167.1	159.2	160.3	161.7	165.6	165.9	167.6	168.1	168.4	168.8	170.8	173.7	174.6	177.1
Lumber and wood products, excluding millwork and other wood products	303.8	308.6	313.9	312.2	284.7	282.0	293.5	306.9	315.5	r307.4	301.4	306.5	314.2	309.2
Special metals and metal products	258.3	253.7	256.0	255.1	255.8	254.0	254.4	256.2	259.0	r257.8	264.6	265.0	268.4	271.3
Fabricated metal products	258.2	247.2	248.4	252.0	255.9	256.8	258.6	259.9	261.2	r262.6	264.2	265.2	266.3	270.0
Copper and copper products	222.1	227.7	260.7	240.9	222.0	212.2	208.5	214.5	220.4	214.1	216.9	216.9	210.9	207.8
Machinery and motive products	230.1	219.7	220.9	222.5	226.7	227.1	228.3	231.0	232.9	r232.1	238.1	239.0	243.8	246.7
Machinery and equipment, except electrical	261.8	249.1	251.1	253.5	258.2	259.6	261.2	263.7	264.6	r270.2	269.4	271.3	273.3	276.6
Agricultural machinery, including tractors	266.2	256.1	257.2	260.0	261.9	263.9	264.7	266.3	268.1	r272.9	271.1	275.4	279.1	283.3
Metalworking machinery	299.5	281.9	284.4	287.5	293.6	296.8	299.7	303.3	304.5	306.5	309.4	311.4	314.4	318.9
Numerically controlled machine tools (Dec. 1971 = 100)	225.6	213.1	215.4	216.7	223.8	226.9	228.5	228.7	229.3	230.0	231.7	232.4	230.9	235.0
Total tractors	286.5	273.0	275.1	276.6	280.8	282.9	284.0	288.3	291.1	r295.8	296.4	296.8	299.4	304.8
Agricultural machinery and equipment less parts	260.2	250.0	251.5	254.1	256.2	258.0	258.7	260.8	262.2	r266.5	264.9	268.8	272.2	276.3
Farm and garden tractors less parts	268.0	256.0	257.5	261.5	263.7	264.7	264.8	267.2	270.3	r277.3	276.3	276.9	280.8	283.6
Agricultural machinery excluding tractors less parts	265.0	256.4	257.3	258.9	260.7	263.6	265.0	265.9	266.6	r269.7	267.0	274.5	277.9	283.3
Industrial valves	287.1	271.0	273.5	280.0	287.8	288.4	290.1	291.1	291.3	r292.4	291.8	293.7	296.3	297.9
Industrial fittings	291.8	276.8	280.4	282.8	289.9	291.5	295.9	296.1	296.1	r296.1	298.4	298.6	298.6	298.6
Abrasive grinding wheels	...	239.0	244.0	244.0	261.4	261.3	261.3	261.5	261.5	261.3	268.4	273.0	273.8	NA
Construction materials	266.3	259.3	262.6	265.1	262.3	261.8	264.2	267.0	269.6	r269.3	269.4	271.8	273.9	276.7

[1] Data for September 1980 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

29. Producer Price Indexes, by durability of product

[1967=100]

Commodity grouping	Annual average 1980	1980												1981
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
Total durable goods	251.2	243.8	247.1	247.0	247.7	247.1	248.7	251.2	253.1	r253.7	257.2	257.8	260.8	261.9
Total nondurable goods	282.3	263.2	270.2	273.4	274.4	277.6	278.8	285.6	290.3	r291.2	292.7	294.8	295.8	300.7
Total manufactures	261.4	248.4	253.2	255.2	257.0	258.3	259.8	263.0	265.7	r265.8	268.8	270.1	271.9	276.4
Durable	250.5	242.9	245.7	245.6	246.7	246.7	248.5	251.0	252.7	r253.1	256.5	257.1	260.2	261.5
Nondurable	272.9	253.9	260.8	265.2	267.9	270.7	271.7	275.9	279.5	r279.5	281.8	283.9	284.2	292.5
Total raw or slightly processed goods	305.4	287.6	295.9	295.4	290.4	292.7	293.8	307.7	315.7	r319.9	319.5	321.8	324.3	318.6
Durable	278.0	282.8	305.3	303.4	286.0	262.2	249.9	255.2	265.8	r274.9	282.7	285.9	284.1	275.7
Nondurable	306.4	286.9	294.2	293.8	289.8	294.0	296.1	310.6	318.4	r322.2	321.1	323.3	326.2	320.7

[1] Data for September 1980 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980												1981
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
	MINING														
1011	Iron ores (12/75 = 100)	152.9	142.0	147.3	152.6	152.6	152.6	152.6	155.8	155.8	155.8	155.8	155.8	155.8	155.8
1092	Mercury ores (12/75 = 100)	331.2	308.3	335.4	330.0	337.5	337.5	322.9	331.2	329.1	335.4	338.7	343.7	325.0	297.9
1211	Bituminous coal and lignite	466.8	459.2	459.6	461.7	464.6	466.0	466.0	466.9	467.9	r470.3	470.0	474.5	474.3	475.8
1311	Crude petroleum and natural gas	640.2	582.7	598.0	600.6	612.5	619.6	631.5	638.0	656.7	r667.6	680.6	690.6	705.5	722.9
1442	Construction sand and gravel	252.0	238.8	243.2	243.9	248.6	249.3	250.0	254.8	255.8	r258.5	261.4	263.5	263.4	269.0
1455	Kaolin and ball clay (6/76 = 100)	136.0	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	137.2	132.1	133.7	137.1
	MANUFACTURING														
2011	Meatpacking plants	244.3	240.8	240.1	238.9	225.6	227.2	230.0	249.1	265.3	257.1	257.9	251.3	248.9	245.8
2013	Sausages and other prepared meats	219.9	211.9	207.8	209.4	197.9	193.3	190.9	213.7	233.0	r240.0	246.4	249.0	246.8	235.3
2016	Poultry dressing plants	191.9	186.1	178.2	173.5	164.5	164.7	164.2	214.2	212.1	226.0	211.3	205.9	201.8	201.9
2021	Creamery butter	258.5	241.8	242.8	243.4	252.7	253.7	255.7	256.3	268.5	265.8	273.2	273.3	274.8	273.7

See footnote at end of table.

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

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980											1981
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
	MANUFACTURING—Continued														
2022	Cheese natural and processed (12/72 = 100)	205.0	195.4	192.9	195.7	201.9	201.9	202.5	203.4	206.8	r208.0	215.5	216.8	217.9	217.8
2024	Ice cream and frozen desserts (12/72 = 100)	193.3	180.9	181.5	185.0	191.3	192.1	195.2	195.2	195.5	196.1	199.5	199.8	207.5	210.1
2033	Canned fruits and vegetables	221.7	213.4	213.6	214.7	216.3	217.3	219.9	222.9	223.4	r224.3	228.5	231.8	232.8	233.7
2034	Dehydrated food products (12/73 = 100)	160.2	157.6	159.0	156.4	157.5	156.4	156.3	157.7	159.6	159.9	162.6	168.7	170.5	172.9
2041	Flour mills (12/71 = 100)	189.1	181.7	183.6	181.6	175.0	182.3	180.8	188.6	193.1	196.1	201.5	205.1	199.5	203.4
2044	Rice milling	243.4	217.5	233.0	258.0	260.4	254.5	236.0	225.3	219.9	225.9	237.2	265.8	287.2	289.6
2048	Prepared foods, n.e.c. (12/75 = 100)	124.3	122.0	122.6	121.5	116.5	116.9	116.2	122.2	126.6	r129.6	129.5	133.6	134.2	132.9
2061	Raw cane sugar	414.1	260.5	374.9	276.0	320.2	456.1	402.4	381.8	484.0	458.9	588.2	563.8	402.9	418.0
2063	Beet sugar	349.6	224.6	293.2	305.7	296.6	339.9	348.0	342.3	365.5	r384.5	429.4	476.2	389.6	375.6
2067	Chewing gum	290.7	262.3	262.3	281.9	282.0	282.0	282.0	282.4	282.4	302.4	322.4	322.9	322.9	323.0
2074	Cottonseed oil mills	192.9	182.4	184.4	170.4	154.7	150.4	155.1	191.3	215.1	232.9	218.7	231.7	228.0	221.2
2075	Soybean oil mills	244.2	235.1	230.4	222.3	211.9	212.9	208.6	37.4	256.9	r275.2	278.5	290.5	270.2	272.0
2077	Animal and marine fats and oils	290.1	298.1	292.6	297.4	274.0	262.9	238.9	274.5	297.4	307.0	311.0	317.2	310.8	310.8
2083	Malt	249.9	244.1	244.1	244.1	244.1	244.1	244.1	244.1	244.1	244.1	267.4	267.4	267.4	286.1
2085	Distilled liquor, except brandy (12/75 = 100)	123.0	118.6	118.7	118.7	118.7	118.9	120.5	121.0	127.7	127.7	127.9	128.5	129.2	129.2
2091	Canned and cured seafoods (12/73 = 100)	174.0	160.9	164.0	165.7	170.2	173.1	175.3	175.9	177.5	178.6	180.0	183.1	183.4	187.0
2092	Fresh or frozen packaged fish	367.1	389.7	385.5	391.6	370.5	360.0	361.2	363.7	365.2	r355.0	354.3	353.8	354.4	375.4
2095	Roasted coffee (12/72 = 100)	269.3	281.3	273.9	274.0	273.9	273.9	283.1	274.5	274.7	263.9	257.0	252.5	248.5	238.2
2098	Macaroni and spaghetti	233.8	227.7	227.7	227.7	230.5	230.5	230.5	230.5	230.5	239.3	243.6	243.6	243.6	243.6
2111	Cigarettes	254.6	245.8	245.9	246.0	246.3	257.3	257.4	257.4	257.4	r257.4	257.6	263.4	263.5	263.5
2121	Cigars	157.7	151.2	154.2	154.4	155.3	155.3	159.8	159.9	159.9	r159.9	161.0	161.3	162.4	163.6
2131	Chewing and smoking tobacco	278.2	260.9	265.1	267.3	279.2	278.6	278.6	279.5	279.7	r279.7	290.1	290.2	294.0	294.2
2211	Weaving mills, cotton (12/72 = 100)	215.6	204.4	206.9	209.5	211.3	212.9	212.9	217.7	219.0	r221.9	223.0	223.9	224.8	227.2
2221	Weaving mills, synthetic (12/77 = 100)	124.5	118.1	118.3	122.7	123.0	122.4	121.2	123.0	124.9	r127.7	129.9	132.5	132.0	131.5
2251	Women's hosiery, except socks (12/75 = 100)	106.4	103.3	103.3	104.3	105.0	105.4	105.4	105.4	108.8	108.8	108.9	109.0	109.0	109.1
2254	Knit underwear mills	190.0	182.5	184.1	186.5	186.8	187.1	190.4	192.6	192.9	r194.1	194.1	194.6	195.0	205.5
2257	Circular knit fabric mills (6/76 = 100)	104.5	99.3	100.4	103.4	104.0	104.4	105.0	105.4	105.7	r105.8	106.4	106.8	107.2	107.9
2261	Finishing plants, cotton (6/76 = 100)	135.1	128.7	129.6	131.9	132.4	134.5	134.6	137.2	137.3	r136.9	139.0	139.3	140.1	142.4
2262	Finishing plants, synthetics, silk (6/76 = 100)	113.6	110.3	109.4	110.4	110.7	111.8	112.1	113.8	114.1	r115.3	117.3	117.9	120.4	121.6
2272	Tufted carpets and rugs	138.1	134.7	134.5	137.0	137.3	137.1	137.4	137.7	138.3	138.3	139.0	140.3	145.3	148.1
2281	Yarn mills, except wool (12/71= 100)	203.5	188.0	197.8	199.5	203.7	204.5	202.8	202.9	204.3	r206.2	207.8	209.9	215.2	217.0
2282	Throwing and winding mills (6/76 = 100)	114.8	110.1	110.6	112.0	114.8	118.1	115.8	115.0	115.8	r117.2	115.8	116.0	118.4	121.5
2284	Thread mills (6/76 = 100)	139.1	128.7	129.2	130.0	134.6	143.0	142.9	143.0	143.1	143.1	143.8	143.9	143.9	144.1
2298	Cordage and twine (12/77 = 100)	123.6	115.0	117.2	118.5	123.6	123.8	125.0	125.0	125.0	125.0	127.1	129.2	129.3	129.3
2311	Men's and boys' suits and coats	212.5	209.0	208.1	208.3	209.7	210.9	211.6	214.9	214.9	214.9	215.9	215.9	216.1	218.1
2321	Men's and boys' shirts and nightwear	204.1	197.7	196.2	199.3	204.0	203.7	205.1	206.5	206.7	r207.7	206.9	207.5	208.4	203.1
2322	Men's and boys' underwear	208.0	199.8	202.0	204.0	204.2	204.3	208.5	211.1	211.2	212.8	212.8	212.8	212.8	224.8
2323	Men's and boys' neckwear (12/75 = 100)	112.6	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	115.4	115.4
2327	Men's and boys' separate trousers	174.5	164.2	174.2	174.3	174.9	174.9	175.1	175.3	175.3	175.3	175.3	175.3	180.3	180.4
2328	Men's and boys' work clothing	240.4	225.1	233.6	235.4	241.2	241.8	242.6	244.8	244.1	r243.9	243.9	243.9	244.3	241.6
2331	Women's and misses' blouses and waists (6/78 = 100)	110.0	107.1	106.6	106.7	107.6	107.6	107.8	111.4	112.6	112.6	112.8	112.8	114.0	114.8
2335	Women's and misses' dresses (12/77 = 100)	114.7	112.9	113.8	113.8	113.9	113.9	114.0	114.0	115.4	115.4	116.3	116.3	116.3	116.4
2341	Women's and children's underwear (12/72 = 100)	154.5	149.4	150.0	153.1	153.1	153.2	155.0	155.4	156.9	155.4	156.0	157.1	158.7	166.1
2342	Brassieres and allied garments (12/75 = 100)	126.6	119.7	122.9	124.9	125.4	125.4	126.6	127.8	129.0	r129.0	129.4	129.5	129.5	132.1
2361	Children's dresses and blouses (12/77 = 100)	109.8	105.3	105.3	105.5	106.3	105.6	108.0	112.7	112.7	r112.2	112.3	114.8	117.0	117.1
2381	Fabric dress and work gloves	268.6	257.7	261.7	265.0	267.5	271.1	271.1	271.1	271.1	271.1	271.1	272.1	272.1	284.9
2394	Canvas and related products (12/77 = 100)	124.0	122.1	122.8	123.4	123.4	123.4	123.4	123.4	123.4	r123.9	125.6	125.6	126.6	127.4
2396	Automotive and apparel trimmings (12/77 = 100)	122.4	114.3	114.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	131.0	131.0	131.0
2421	Sawmills and planing mills (12/71 = 100)	227.5	234.8	239.5	239.1	215.8	209.4	218.1	228.9	234.2	r229.0	222.1	226.8	233.5	232.4
2436	Softwood veneer and plywood (12/75 = 100)	144.6	138.5	143.7	139.8	121.9	130.3	140.5	150.4	160.7	r149.6	149.2	152.3	158.2	149.8
2439	Structural wood members, n.e.c. (12/75 = 100)	155.8	158.2	158.2	158.3	158.2	152.1	152.1	152.1	152.2	155.5	158.9	157.0	157.1	157.1
2448	Wood pallets and skids (12/75 = 100)	160.1	169.8	167.0	166.3	164.6	162.8	159.7	157.1	156.0	154.9	154.6	154.7	154.1	153.8
2451	Mobile homes (12/74 = 100)	150.0	144.8	146.9	147.2	149.5	150.5	150.7	151.3	151.4	r151.8	152.1	152.1	152.4	152.4
2492	Particleboard (12/75 = 100)	161.1	136.9	150.7	158.9	161.9	167.3	171.7	168.7	169.4	r163.7	158.6	161.6	164.7	162.7
2511	Wood household furniture (12/71 = 100)	183.6	177.5	178.2	178.9	180.0	182.2	183.5	185.1	186.4	r187.7	187.0	188.6	189.8	191.2
2512	Upholstered household furniture (12/71 = 100)	162.6	155.9	158.7	158.7	160.9	161.1	162.5	166.1	166.2	r166.2	164.9	165.8	167.6	166.9
2515	Mattresses and bedsprings	179.0	169.9	170.5	170.5	172.8	176.0	176.0	180.8	186.4	r186.4	186.3	186.4	186.4	186.2
2521	Wood office furniture	235.3	226.2	233.8	233.8	233.9	233.9	234.0	235.5	235.5	r235.5	240.3	239.6	240.8	244.0
2611	Pulp mills (12/73 = 100)	240.8	225.2	225.1	225.5	243.8	243.9	243.9	244.5	244.5	r244.4	248.3	249.0	249.1	249.1
2621	Paper mills, except building (12/74 = 100)	145.6	139.0	139.8	142.5	145.0	145.8	146.2	146.4	146.7	r146.7	148.5	149.5	151.0	152.0
2631	Paperboard mills (12/74 = 100)	139.1	131.3	132.3	134.6	137.9	139.5	141.2	140.3	141.1	r141.7	142.5	143.7	142.8	148.3
2647	Sanitary paper products	322.3	295.8	303.9	311.7	316.7	319.3	321.2	327.4	331.1	r331.1	333.6	335.6	339.2	339.2
2654	Sanitary food containers	216.4	202.6	204.8	208.9	212.9	215.5	217.2	218.2	220.3	r222.3	223.4	223.4	226.5	233.2
2655	Fiber cans, drums, and similar products (12/75 = 100)	151.0	143.2	143.2	143.3	146.6	148.7	150.6	155.2	155.2	155.2	155.5	155.5	159.4	157.7
2812	Alkalies and chlorine (12/73 = 100)	249.3	220.4	226.5	233.7	241.2	246.5	250.0	251.9	257.3	r257.2	262.8	272.3	267.8	282.5
2821	Plastics materials and resins (6/76 = 100)	143.1	138.5	139.7	140.8	146.4	147.3	146.9	146.1	144.4	r141.5	141.8	142.0	141.1	142.7
2822	Synthetic rubber	255.5	240.9	244.2	244.7	256.8	259.3	259.6	259.8	260.5	r260.1	259.9	259.3	261.5	274.6
2824	Organic fiber, noncellulosic	132.6	124.1	124.7	126.9	128.5	131.7	132.8	133.4	134.9	r137.1	138.6	139.3	139.6	144.8
2873	Nitrogenous fertilizers (12/75 = 100)	124.1	114.3	119.8	122.1	123.6	124.5	123.4	122.6	123.7	r127.2	130.3	130.0	131.8	135.1
2874	Phosphatic fertilizers	237.1	229.2	233.2	235.0	237.2	236.3	235.7	234.8	240.6	r240.8	239.2	239.2	244.9	247.5
2875	Fertilizers, mixing only	246.6	233.2	239.8	242.5	245.2	248.5	249.0	249.8	249.3	r250.2	249.3	251.7	251.8	255.9
2892	Explosives	269.7	253.6	255.2	260.2	271.4	272.8	273.7	273.8	273.4	r273.3	273.4	272.8	282.7	288.7
2911	Petroleum refining (6/76 = 100)	248.5	213.9	228.4	242.3	250.5	253.0	253.3	255.9	256.9	r256.4	254.5	256.1	261.2	268.1
2951	Paving mixtures and blocks (12/75 = 100)	171.5	150.0	161.5	167.9	172.7	172.7	172.6	174.7	175.1	r176.0	176.5	176.5	181.5	182.1
2952	Asphalt felts and coatings (12/75) = 100)	173.3	156.1	162.7	169.9	178.2	174.8	175.0	180.9	179.8	r178.3	178.5	173.5	172.5	176.5
3011	Tires and inner tubes (12/73 = 100)	202.9	193.0	198.7	198.8	199.1	200.1	202.2	204.1	204.1	r207.4	209.5	209.5	209.7	206.6

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1979	1980											1981
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[1]	Oct.	Nov.	Dec.	Jan.
3021	Rubber and plastic footwear (12/71 = 100)	178.0	173.5	173.6	173.6	173.7	173.7	173.8	181.8	181.9	r182.0	182.7	183.1	183.0	183.2
3031	Reclaimed rubber (12/73 = 100)	184.0	179.7	180.0	184.9	185.9	186.5	186.5	186.5	185.9	r185.9	182.0	182.0	184.7	188.3
3079	Miscellaneous plastic products (6/78 = 100)	121.5	116.6	117.0	119.1	120.3	120.5	122.2	122.7	123.9	r124.4	123.7	123.8	124.2	125.1
3111	Leather tanning and finishing (12/77 = 100)	147.1	164.3	160.8	146.7	140.8	137.9	134.6	137.7	147.9	r140.0	129.1	149.3	156.6	157.0
3142	House slippers (12/75 = 100)	149.6	143.5	145.4	145.4	145.4	145.4	145.4	151.1	151.1	r151.1	154.9	159.7	154.9	NA
3143	Men's footwear, except athletic (12/75 = 100)	159.9	160.3	157.9	158.5	158.5	158.5	158.5	158.5	159.5	r161.5	161.7	162.4	162.4	164.7
3144	Women's footwear, except athletic	213.5	205.6	206.3	213.5	213.8	213.8	213.8	214.2	214.3	215.2	217.1	217.1	217.2	217.9
3171	Women's handbags and purses (12/75 = 100)	137.9	131.9	131.9	132.1	132.1	140.8	140.9	140.9	140.0	140.9	140.9	140.9	140.9	149.5
3211	Flat glass (12/71 = 100)	161.3	157.6	157.6	157.9	160.8	160.8	158.9	159.5	162.6	162.8	163.8	166.4	166.3	167.1
3221	Glass containers	292.6	274.3	274.3	274.3	294.2	294.2	294.2	294.2	294.2	r294.2	304.9	306.4	311.4	311.4
3241	Cement, hydraulic	309.8	305.7	305.9	306.3	312.6	313.8	313.8	313.3	313.1	r312.3	309.0	307.6	307.6	319.2
3251	Brick and structural clay tile	277.3	268.3	270.4	271.9	276.4	278.5	278.5	278.5	277.6	278.5	282.6	283.0	283.8	287.5
3253	Ceramic wall and floor tile (12/75 = 100)	122.5	130.4	130.4	130.4	130.4	117.6	117.6	117.6	117.6	117.6	120.1	120.1	120.1	127.1
3255	Clay refractories	274.1	255.1	259.4	263.7	273.9	275.6	275.9	279.2	279.5	r279.7	281.6	282.1	282.1	293.1
3259	Structural clay products, n.e.c.	202.8	196.3	198.1	196.4	203.1	204.1	204.4	204.7	205.0	r204.8	205.3	205.4	205.6	209.9
3261	Vitreous plumbing fixtures	234.8	219.2	224.6	226.7	227.6	236.1	235.8	237.2	240.4	241.1	241.5	242.6	245.0	244.7
3262	Vitreous china food utensils	317.3	308.2	308.2	308.2	313.4	313.4	318.6	318.3	318.3	318.7	327.4	327.4	327.4	327.4
3263	Fine earthenware food utensils	295.4	294.3	294.3	294.3	295.1	293.9	294.7	294.6	294.6	r296.4	297.6	297.6	297.6	298.3
3269	Pottery products, n.e.c. (12/75 = 100)	152.6	150.1	150.1	150.1	151.4	151.5	152.7	152.7	152.7	r153.3	155.4	155.4	155.4	155.4
3271	Concrete block and brick	257.3	249.5	250.6	252.3	259.3	259.4	259.4	259.5	259.5	r260.5	259.3	259.4	259.4	264.1
3273	Ready-mixed concrete	279.9	270.8	272.6	275.5	278.8	281.5	282.5	282.6	282.6	r283.6	282.8	282.8	283.3	294.0
3274	Lime (12/75 = 100)	157.8	149.5	153.5	155.6	157.1	157.3	157.7	159.6	160.2	158.8	160.9	161.0	162.0	165.8
3275	Gypsum products	256.7	255.9	262.8	268.1	264.6	257.0	257.5	253.5	252.3	252.2	250.0	253.7	253.1	259.9
3291	Abrasive products (12/71 = 100)	212.6	199.4	203.3	203.9	212.0	211.8	213.5	215.2	215.7	r217.1	218.8	220.2	220.6	222.7
3297	Nonclay refractories (12/74 = 100)	161.2	152.6	153.3	154.2	157.4	159.7	161.2	162.8	164.9	r164.8	167.9	167.6	167.6	172.4
3312	Blast furnaces and steel mills	310.4	302.4	302.9	304.1	312.0	313.3	313.5	308.6	308.5	r308.6	314.8	316.6	320.0	328.7
3313	Electrometallurgical products (12/75 = 100)	117.7	117.8	117.8	118.0	118.7	118.6	118.7	117.1	117.1	117.2	117.3	117.3	117.3	119.9
3316	Cold finishing of steel shapes	283.9	274.1	277.1	277.2	285.9	288.1	288.2	282.2	282.3	282.3	288.1	288.5	293.0	302.8
3317	Steel pipes and tubes	291.0	280.5	281.0	283.2	286.8	286.9	290.4	292.4	292.6	292.6	294.3	302.4	308.5	315.0
3321	Gray iron foundries (12/68 = 100)	282.0	273.7	276.9	277.2	279.8	280.5	282.5	283.0	283.2	r283.3	288.2	288.6	289.2	291.9
3333	Primary zinc	269.9	266.1	272.4	279.6	274.3	268.2	268.6	255.9	255.9	r264.0	269.9	279.3	287.5	289.4
3334	Primary aluminum	298.3	267.0	267.0	267.8	276.0	287.0	290.1	312.1	312.2	r313.0	327.6	329.9	329.4	333.9
3351	Copper rolling and drawing	227.6	231.0	253.1	238.6	227.4	222.8	220.2	222.8	226.2	220.2	222.2	223.1	223.1	221.9
3353	Aluminum sheet plate and foil (12/75 = 100)	158.2	153.2	153.5	155.5	157.8	157.6	157.8	158.2	157.6	157.6	161.4	163.3	165.1	169.3
3354	Aluminum extruded products (12/75 = 100)	167.7	158.8	158.9	160.9	167.7	167.7	167.7	168.3	168.4	r168.2	173.1	176.3	176.4	176.8
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	146.2	140.7	141.0	141.1	143.8	145.2	146.7	147.4	147.6	r147.5	150.5	151.3	151.2	155.5
3411	Metal cans	291.6	276.6	277.3	279.9	295.1	295.2	294.9	295.6	295.9	296.1	297.9	297.2	297.4	302.1
3425	Hand saws and saw blades (12/72 = 100)	182.0	173.1	174.6	176.4	178.0	181.5	181.9	183.5	185.4	r185.8	186.6	186.9	190.2	195.0
3431	Metal sanitary ware	248.3	237.8	242.1	243.1	245.5	249.7	249.9	250.9	251.4	r251.4	251.5	252.1	253.7	255.9
3465	Automotive stampings (12/75 = 100)	137.0	132.4	132.4	132.7	133.5	133.8	137.8	137.8	139.8	r140.1	140.5	141.2	141.5	143.3
3482	Small arms ammunition (12/75 = 100)	146.8	143.2	143.2	142.6	141.7	141.4	144.6	145.1	147.3	r145.3	150.6	151.1	161.3	158.2
3493	Steel springs, except wire	230.2	226.1	226.6	228.6	229.2	229.2	230.3	230.3	230.8	r231.9	232.8	232.9	233.9	238.2
3494	Valves and pipe fittings (12/71 = 100)	229.7	216.9	219.6	223.1	229.4	229.9	231.8	232.5	232.7	r233.3	234.7	235.6	237.6	239.0
3498	Fabricated pipe and fittings	315.5	301.7	301.8	303.5	313.0	313.1	313.8	317.2	317.2	319.9	325.0	329.9	329.9	335.7
3519	Internal combustion engines, n.e.c.	274.9	260.5	261.8	266.1	270.6	271.6	271.7	276.8	278.6	r283.2	283.8	287.1	288.5	293.0
3531	Construction machinery (12/76 = 100)	140.9	134.6	135.7	136.3	138.6	139.5	140.3	141.8	142.7	r143.8	145.1	145.8	146.7	148.9
3532	Mining machinery (12/72 = 100)	258.3	245.8	247.1	247.8	256.0	257.3	258.2	259.4	262.0	r264.1	265.2	267.9	269.6	271.9
3533	Oilfield machinery and equipment	337.7	314.2	316.2	318.9	329.8	333.1	337.4	342.6	345.7	r347.3	350.8	357.8	360.9	366.5
3534	Elevators and moving stairways	239.2	225.6	226.1	229.1	232.6	234.1	242.8	244.2	243.8	246.4	248.3	248.4	249.5	250.3
3542	Machine tools, metal forming types (12/71 = 100)	279.6	266.1	268.1	269.4	274.3	275.1	279.2	284.3	285.3	r285.6	287.1	287.9	292.5	298.1
3546	Power driven hand tools (12/76 = 100)	132.0	126.3	126.6	127.4	129.0	131.2	131.1	133.5	134.5	r135.3	136.3	136.4	137.6	141.7
3552	Textile machinery (12/69 = 100)	216.6	202.6	205.2	207.0	213.4	213.6	217.0	221.7	222.1	r222.3	223.7	224.5	226.0	231.1
3553	Woodworking machinery (12/72 = 100)	212.6	201.2	201.6	205.1	212.3	212.1	213.7	215.9	216.0	r216.0	217.4	218.1	221.9	222.9
3576	Scales and balances, excluding laboratory	212.7	204.2	205.8	206.6	207.5	208.2	208.6	215.4	226.2	r226.2	217.1	217.7	218.0	219.8
3592	Carburetors, pistons, rings, valves (6/76 = 100)	156.5	147.5	147.8	148.6	152.6	153.0	153.5	158.6	159.3	r160.1	164.7	165.0	167.4	168.7
3612	Transformers	185.0	172.9	176.6	177.5	180.5	181.5	182.9	186.0	190.6	r190.7	194.0	192.8	193.4	195.2
3623	Welding apparatus, electric (12/72 = 100)	209.7	201.3	203.3	206.0	207.0	209.2	211.0	212.1	212.1	r211.7	213.8	214.2	215.5	218.3
3631	Household cooking equipment (12/75 = 100)	133.0	128.7	129.3	129.4	129.7	133.1	134.7	134.9	134.4	r134.7	134.7	134.9	137.1	140.1
3632	Household refrigerators, freezers (6/76 = 100)	120.9	117.0	118.5	118.6	119.3	119.4	122.0	122.2	122.2	r123.3	122.8	123.7	123.8	126.2
3633	Household laundry equipment (12/73 = 100)	162.0	154.0	156.6	158.3	160.3	161.7	162.3	161.2	163.6	165.5	166.1	166.6	167.3	169.7
3635	Household vacuum cleaners	152.2	146.1	149.7	151.3	148.6	149.3	155.8	158.4	158.5	r158.6	152.2	152.2	152.5	152.6
3636	Sewing machines (12/75 = 100)	128.9	122.6	129.2	129.2	129.2	129.2	129.2	130.0	130.0	r130.0	129.7	129.7	129.7	129.7
3641	Electric lamps	260.1	248.5	252.4	251.8	252.3	251.3	258.1	266.3	268.1	r269.2	268.9	269.3	266.2	265.9
3644	Noncurrent-carrying wiring devices (12/72 = 100)	220.3	212.9	215.2	215.3	217.4	218.2	220.4	220.3	220.7	r220.9	223.8	225.0	231.2	235.3
3646	Commercial lighting fixtures (12/75 = 100)	139.3	133.4	134.3	136.2	138.0	138.5	139.2	139.2	140.4	r142.3	142.3	143.4	145.0	145.6
3648	Lighting equipment, n.e.c. (12/75 = 100)	139.9	133.0	133.2	134.6	139.4	140.2	140.7	140.7	140.9	r143.2	143.4	144.5	144.9	146.3
3671	Electron tubes receiving type	251.8	229.1	229.4	229.7	254.0	254.7	255.2	255.5	255.6	255.7	264.6	264.8	272.7	284.3
3674	Semiconductors and related devices	90.6	86.8	88.5	89.3	90.4	91.2	92.0	92.1	91.8	r92.0	91.7	91.1	91.1	90.6
3675	Electronic capacitors (12/75 = 100)	162.6	147.7	149.1	151.3	157.0	160.7	160.5	168.6	172.6	r174.0	170.0	170.1	170.1	170.3
3676	Electronic resistors (12/75 = 100)	134.1	127.4	128.8	131.8	131.9	133.0	135.2	135.3	136.3	136.9	137.7	137.7	137.8	138.1
3678	Electronic connectors (12/75 = 100)	148.2	145.1	146.4	146.7	146.5	146.8	148.7	148.9	149.1	r149.6	150.0	150.0	150.1	152.6
3692	Primary batteries, dry and wet	176.5	174.2	176.5	176.6	176.8	176.4	176.4	176.4	176.7	176.8	176.9	176.9	176.9	179.0
3711	Motor vehicles and car bodies (12/75 = 100)	136.6	132.7	131.6	131.8	135.5	134.5	134.6	137.3	137.9	r131.4	144.0	144.1	143.6	145.0
3942	Dolls (12/75 = 100)	126.8	122.7	125.4	125.6	127.7	128.4	128.4	128.4	128.4	r128.4	126.6	126.6	126.6	129.0
3944	Games, toys, and children's vehicles	204.5	198.7	203.8	204.0	205.0	205.3	205.9	206.0	206.0	r206.6	204.7	205.2	205.4	210.4
3955	Carbon paper and inked ribbons (12/75 = 100)	132.9	126.2	128.2	128.3	131.5	133.3	136.4	135.0	135.0	r135.0	135.0	135.0	135.0	133.1
3995	Burial caskets (6/76 = 100)	131.2	128.3	128.3	128.3	128.4	130.3	132.2	132.2	132.2	132.9	132.9	132.9	135.0	135.0
3996	Hard surface floor coverings (12/75 = 100)	143.7	138.6	138.7	138.7	143.2	143.3	143.3	146.1	146.6	146.6	146.6	146.6	146.6	148.6

[1] Data for September 1980 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 31 through 34, has been discontinued. **Hours of all persons** is now used to describe the labor input of payroll workers, self-employed persons, and unpaid family workers. **Output per all-employee hour** is now used to describe labor productivity in nonfinancial corporations where there are no self-employed.

Notes on the data

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

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

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

31. Annual indexes of productivity, hourly compensation, unit costs, and prices, 1950–80

[1967=100]

Item	1950	1955	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980
Private business sector:													
Output per hour of all persons	50.3	58.2	65.1	78.2	86.1	94.8	92.7	94.8	97.9	100.0	99.8	99.4	99.0
Compensation per hour	20.0	26.3	33.9	41.7	58.2	71.3	78.0	85.5	92.9	100.0	108.4	119.2	131.1
Real compensation per hour	50.4	59.6	69.4	80.0	90.8	97.3	95.9	96.3	98.8	100.0	100.7	99.5	96.4
Unit labor cost	39.8	45.2	52.1	53.3	67.6	75.2	84.2	90.2	94.8	100.0	108.6	119.9	132.4
Unit nonlabor payments	43.5	47.8	50.8	57.8	63.4	75.6	78.9	90.7	94.4	100.0	105.1	110.9	118.3
Implicit price deflator	41.0	46.1	51.7	54.8	66.2	75.3	82.4	90.4	94.7	100.0	107.4	116.9	127.6
Nonfarm business sector:													
Output per hour of all persons	56.2	62.7	68.2	80.4	86.7	95.3	93.1	95.0	98.1	100.0	99.8	99.0	98.5
Compensation per hour	21.8	28.3	35.6	42.8	58.6	71.7	78.4	86.0	93.0	100.0	108.5	118.8	130.4
Real compensation per hour	55.0	63.9	73.0	82.2	91.5	97.7	96.4	96.8	99.0	100.0	100.7	99.2	95.9
Unit labor cost	38.8	45.1	52.3	53.2	67.6	75.2	84.3	90.5	94.8	100.0	108.7	120.0	132.4
Unit nonlabor payments	42.8	47.9	50.5	58.2	64.0	71.9	76.1	88.9	94.0	100.0	103.6	108.5	117.6
Implicit price deflator	40.2	46.0	51.7	54.9	66.4	74.1	81.6	89.9	94.5	100.0	107.0	116.2	127.5
Nonfinancial corporations:													
Output per hour of all employees	(1)	(1)	66.3	79.9	85.4	94.5	91.3	94.4	97.4	100.0	100.4	100.2	(1)
Compensation per hour	(1)	(1)	36.3	43.0	58.3	70.8	77.6	85.5	92.5	100.0	108.2	118.5	(1)
Real compensation per hour	(1)	(1)	74.2	82.6	91.0	96.5	95.4	96.3	98.5	100.0	100.5	99.0	(1)
Unit labor cost	(1)	(1)	54.7	53.8	68.3	74.9	85.1	90.6	95.0	100.0	107.8	118.2	(1)
Unit nonlabor payments	(1)	(1)	54.6	60.8	63.1	70.7	75.7	90.9	95.0	100.0	103.8	108.3	(1)
Implicit price deflator	(1)	(1)	54.7	56.2	66.5	73.4	81.8	90.7	95.0	100.0	106.4	114.8	(1)
Manufacturing:													
Output per hour of all persons	51.5	58.8	62.5	77.1	82.2	93.1	88.5	93.0	97.1	100.0	100.4	101.3	101.3
Compensation per hour	21.5	28.8	36.7	42.9	57.6	69.1	76.4	85.5	92.4	100.0	108.2	118.7	131.2
Real compensation per hour	54.1	65.2	75.1	82.3	89.9	94.2	93.9	96.3	98.3	100.0	100.5	99.1	96.5
Unit labor cost	41.7	49.0	58.7	55.6	70.1	74.1	86.3	91.9	95.1	100.0	107.8	117.2	129.5
Unit nonlabor payments	55.8	60.0	62.5	69.9	64.9	71.6	70.5	86.1	94.3	100.0	103.0	103.1	120.8
Implicit price deflator	45.6	52.1	59.8	59.6	68.6	73.4	81.9	90.3	94.9	100.0	106.5	113.2	127.1

[1] Not available.

32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1969–80

Item	Year											Annual rate of change	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1950-80	1960-80
Private business sector:													
Output per hour of all persons	0.9	3.6	3.5	2.7	−2.3	2.3	3.3	2.1	−0.2	−0.4	−0.3	2.5	2.2
Compensation per hour	7.4	6.6	6.5	8.0	9.4	9.6	8.6	7.7	8.4	9.9	10.0	6.0	7.1
Real compensation per hour	1.4	2.2	3.1	1.7	−1.4	0.4	2.7	1.2	0.7	−1.2	−3.1	2.4	1.9
Unit labor cost	6.4	2.9	2.9	5.2	11.9	7.2	5.1	5.5	8.6	10.4	10.4	3.5	4.8
Unit nonlabor payments	0.7	7.6	4.5	5.9	4.4	15.0	4.1	5.9	5.1	5.5	6.6	3.2	4.4
Implicit price deflator	4.5	4.4	3.4	5.4	9.4	9.7	4.7	5.6	7.4	8.8	9.2	3.4	4.7
Nonfarm business sector:													
Output per hour of all persons	0.3	3.3	3.7	2.5	−2.4	2.1	3.2	2.0	−0.2	−0.8	−0.5	2.1	1.9
Compensation per hour	7.0	6.6	6.7	7.6	9.4	9.6	8.1	7.6	8.5	9.6	9.8	5.7	6.8
Real compensation per hour	1.0	2.2	3.3	1.3	−1.4	0.4	2.2	1.0	0.7	−1.5	−3.3	2.1	1.6
Unit labor cost	6.6	3.1	2.8	4.9	12.1	7.4	4.7	5.5	8.7	10.4	10.3	3.5	4.8
Unit nonlabor payments	1.1	7.4	3.2	1.3	5.9	16.7	5.7	6.4	3.6	4.8	8.4	3.1	4.2
Implicit price deflator	4.8	4.5	3.0	3.7	10.1	10.3	5.1	5.8	7.0	8.6	9.7	3.4	4.6
Nonfinancial corporations:													
Output per hour of all employees	0.4	4.8	3.0	2.6	−3.4	3.4	3.2	2.7	0.4	−0.2	(1)	(1)	(1)
Compensation per hour	6.8	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	9.5	(1)	(1)	(1)
Real compensation per hour	0.8	2.1	2.5	1.4	−1.1	0.9	2.3	1.5	0.5	−1.6	(1)	(1)	(1)
Unit labor cost	6.3	1.6	2.8	4.9	13.6	6.5	4.9	5.3	7.8	9.7	(1)	(1)	(1)
Unit nonlabor payments	0.5	7.4	2.7	1.5	7.1	20.1	4.6	5.2	3.8	4.4	(1)	(1)	(1)
Implicit price deflator	4.4	3.5	2.8	3.8	11.4	10.9	4.8	5.2	6.4	7.9	(1)	(1)	(1)
Manufacturing:													
Output per hour of all persons	−0.1	5.2	4.8	2.7	−5.0	5.1	4.4	3.0	0.4	0.9	0.0	2.5	2.4
Compensation per hour	6.8	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	9.7	10.5	5.6	6.7
Real compensation per hour	0.8	1.8	2.0	0.9	−0.3	2.5	2.1	1.7	0.5	−1.4	−2.7	2.0	1.5
Unit labor cost	6.9	0.8	0.6	4.4	16.4	6.5	3.5	5.1	7.8	8.7	10.5	3.1	4.1
Unit nonlabor payments	−2.5	9.5	1.9	−1.1	−1.6	22.0	9.6	6.0	3.0	0.1	17.1	4.6	8.4
Implicit price deflator	4.2	3.1	1.0	2.8	11.5	10.2	5.1	5.4	6.5	6.3	12.2	4.5	7.6

[1] Not available.

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

[1967=100]

Item	Annual average		Quarterly indexes										
			1978			1979				1980			
	1979	1980	II	III	IV	I	II	III	IV	I	II	III	IV
Private business sector:													
Output per hour of all persons	99.4	99.0	99.9	100.0	99.9	99.7	99.6	99.2	99.0	99.3	98.8	99.2	98.7
Compensation per hour	119.2	131.1	107.1	109.4	111.9	115.0	118.0	120.5	123.0	126.0	129.7	132.8	135.5
Real compensation per hour	99.5	96.4	100.5	100.5	100.5	100.5	100.1	99.0	97.9	96.5	96.2	96.8	95.9
Unit labor cost	119.9	132.4	107.3	109.4	112.1	115.4	118.5	121.4	124.2	127.0	131.3	133.9	137.3
Unit nonlabor payments	110.9	118.3	104.8	106.7	109.1	109.6	110.4	111.5	112.3	115.3	116.0	119.8	122.7
Implicit price deflator	116.9	127.6	106.4	108.5	111.1	113.4	115.8	118.1	120.2	123.0	126.1	129.1	132.4
Nonfarm business sector:													
Output per hour of all persons	99.0	98.5	99.9	99.9	99.8	99.5	99.1	98.7	98.6	98.6	97.9	98.8	98.5
Compensation per hour	118.8	130.4	107.2	109.4	111.9	114.9	117.6	119.9	122.7	125.6	129.0	131.9	135.0
Real compensation per hour	99.2	95.9	100.6	100.5	100.5	100.4	99.8	98.6	97.7	96.2	95.7	96.1	95.6
Unit labor cost	120.0	132.4	107.3	109.5	112.2	115.4	118.7	121.5	124.4	127.4	131.8	133.5	137.0
Unit nonlabor payments	108.5	117.6	103.2	105.1	107.0	107.1	107.7	109.3	110.2	114.0	115.2	119.2	122.2
Implicit price deflator	116.2	127.5	105.9	108.0	110.5	112.6	115.1	117.4	119.7	122.9	126.3	128.8	132.1
Nonfinancial corporations:													
Output per hour of all employees	100.2	(1)	100.8	100.4	100.5	100.5	100.5	100.2	99.6	100.0	99.8	101.5	(1)
Compensation per hour	118.5	(1)	107.1	109.2	111.5	114.4	117.4	119.8	122.3	125.3	128.9	132.1	(1)
Real compensation per hour	99.0	(1)	100.5	100.2	100.1	100.0	99.6	98.4	97.4	96.0	95.6	96.3	(1)
Total unit costs	116.8	(1)	105.4	107.6	109.6	112.2	115.3	118.2	121.3	124.2	129.2	131.1	(1)
Unit labor cost	118.2	(1)	106.2	108.7	111.0	113.8	116.8	119.5	122.8	125.4	129.1	130.2	(1)
Unit nonlabor costs	112.7	(1)	103.0	104.4	106.0	107.8	111.2	114.6	117.2	120.9	129.3	133.8	(1)
Unit profits	99.0	(1)	105.5	105.9	108.9	105.6	100.7	97.5	92.2	95.5	83.4	89.1	(1)
Implicit price deflator	114.8	(1)	105.4	107.4	109.6	111.5	13.7	115.9	118.1	121.0	124.1	126.4	(1)
Manufacturing:													
Output per hour of all persons	101.3	101.3	100.2	101.1	101.3	100.8	101.7	101.4	101.5	101.5	100.4	100.2	102.8
Compensation per hour	118.7	131.2	106.9	109.1	111.5	114.5	118.5	119.7	122.0	125.0	129.6	133.5	136.8
Real compensation per hour	99.1	96.5	100.3	100.2	100.1	100.1	100.5	98.4	97.2	95.7	96.1	97.3	96.8
Unit labor cost	117.2	129.5	106.7	107.9	110.1	113.7	116.6	118.1	120.2	123.2	129.1	133.2	133.1

r = revised.

[1] Not available

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

[1967=100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	II 1979 to III 1979	III 1979 to IV 1979	IV 1979 to I 1980	I 1980 to II 1980	II 1980 to III 1980	III 1980 to IV 1980	III 1978 to III 1979	IV 1978 to IV 1979	I 1979 to I 1980	II 1979 to II 1980	III 1979 to III 1980	IV 1979 to IV 1980
Private business sector:												
Output per hour of all persons	−1.5	−1.1	1.3	−1.9	1.5	−1.9	−0.7	−0.9	−0.4	−0.8	0.0	−0.3
Compensation per hour	8.5	8.6	10.4	12.2	9.7	8.5	10.1	9.9	9.6	9.9	10.2	10.2
Real compensation per hour	−4.4	−4.4	−5.6	−1.3	2.4	−3.4	−1.5	−2.5	−4.0	−3.9	−2.3	−2.0
Unit labor cost	10.1	9.8	9.0	14.4	8.1	10.6	10.9	10.9	10.0	10.8	10.3	10.5
Unit nonlabor payments	4.2	2.6	11.3	2.6	13.6	10.1	4.6	2.9	5.2	5.1	7.4	9.3
Implicit price deflator	8.2	7.4	9.7	10.5	9.8	10.4	8.8	8.2	8.4	9.0	9.4	10.1
Nonfarm business sector:												
Output per hour of all persons	−1.4	−0.3	0.0	−3.0	3.7	−1.1	−1.2	−1.1	−0.9	−1.2	0.1	−0.1
Compensation per hour	8.1	9.6	9.9	11.2	9.2	9.6	9.6	9.6	9.4	9.7	10.0	10.0
Real compensation per hour	−4.7	−3.5	−6.0	−2.2	2.0	−2.3	−1.9	−2.7	−4.2	−4.1	−2.5	−2.2
Unit labor cost	9.7	9.9	9.9	14.6	5.3	10.9	10.9	10.9	10.4	11.0	9.9	10.1
Unit nonlabor payments	5.9	3.3	14.6	4.2	14.9	10.2	4.0	3.0	6.4	6.9	9.1	10.9
Implicit price deflator	8.5	7.8	11.3	11.3	8.2	10.7	8.7	8.3	9.1	9.7	9.6	10.4
Nonfinancial corporations:												
Output per hour of all employees	−1.1	−2.5	1.4	−0.5	6.8	(1)	−0.2	−0.9	−0.5	−0.7	1.3	(1)
Compensation per hour	8.2	8.9	10.1	12.0	10.3	(1)	9.7	9.7	9.5	9.8	10.3	(1)
Real compensation per hour	−4.6	−4.1	−5.8	−1.5	3.0	(1)	−1.8	−2.7	−4.1	−4.0	−2.2	(1)
Total unit costs	10.3	11.0	9.8	17.0	6.2	(1)	9.9	10.7	10.6	12.0	11.0	(1)
Unit labor costs	9.5	11.6	8.6	12.6	3.2	(1)	9.9	10.7	10.1	10.5	8.9	(1)
Unit nonlabor costs	12.8	9.3	13.5	30.6	14.7	(1)	9.8	10.6	12.2	16.3	16.8	(1)
Unit profits	−12.0	−20.2	15.3	−41.9	30.3	(1)	−7.9	−15.4	−9.5	−17.2	−8.6	(1)
Implicit price deflator	7.9	7.8	10.3	10.5	7.9	(1)	7.9	7.8	8.5	9.1	9.1	(1)
Manufacturing:												
Output per hour of all persons	−1.2	0.6	0.0	−4.1	−0.7	10.6	0.3	0.2	−0.7	−1.2	−1.1	1.3
Compensation per hour	3.9	8.1	10.1	15.5	12.7	10.1	9.7	9.4	9.1	9.3	11.6	12.1
Real compensation per hour	−8.4	−4.8	−5.9	1.6	5.2	−1.9	−1.8	−2.9	−4.4	−4.4	−1.1	−0.3
Unit labor cost	5.2	7.5	10.1	20.5	13.6	−0.4	9.4	9.3	8.4	−10.7	12.8	10.7

r = revised.

[1] Not available.

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

Definitions

Data on wage changes apply to private nonfarm industry agreements covering 1,000 workers or more. Data on wage and benefit changes *combined* apply only to those agreements covering 5,000 workers or more. **First-year wage settlements** refer to pay changes going into effect within the first 12 months after the effective date of the agreement. **Changes over the life of the agreement** refer to total agreed upon settlements (exclusive of potential cost-of-living escalator adjustments) expressed at an average annual rate. **Wage-rate changes** are expressed as a percent of straight-time hourly earnings, while **wage and benefit changes** are expressed as a percent of total compensation.

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

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

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

[In percent]

Sector and measure	Annual average					Quarterly average							
						1979				1980 P			
	1976	1977	1978	1979	1980 P	I	II	III	IV	I	II	III	IV
Wage and benefit settlements, all industries:													
First-year settlements	8.5	9.6	8.3	9.0	10.4	2.8	10.5	9.0	8.5	8.6	10.1	11.6	8.3
Annual rate over life of contract	6.6	6.2	6.3	6.6	7.0	5.3	7.8	6.1	6.0	6.4	6.8	7.3	5.9
Wage rate settlements, all industries:													
First-year settlements	8.4	7.8	7.6	7.4	9.5	5.7	8.9	6.8	6.3	7.8	8.7	10.7	8.4
Annual rate over life of contract	6.4	5.8	6.4	6.0	7.1	6.6	7.2	5.1	5.3	6.3	6.8	7.4	6.5
Manufacturing:													
First-year settlements	8.9	8.4	8.3	6.9	7.3	8.7	9.7	6.3	5.6	7.0	6.6	8.7	7.6
Annual rate over life of contract	6.0	5.5	6.6	5.4	5.4	7.7	8.1	4.7	4.2	5.6	4.9	5.5	5.7
Nonmanufacturing (excluding construction):													
First-year settlements	8.6	8.0	8.0	7.6	9.6	3.2	8.5	9.4	7.8	9.1	10.4	9.4	8.9
Annual rate over life of contract	7.2	5.9	6.5	6.2	6.6	5.6	5.8	6.5	7.4	7.1	8.6	5.8	7.4
Construction:													
First-year settlements	6.1	6.3	6.5	8.8	13.6	9.7	8.7	9.7	7.5	9.6	12.7	15.7	14.3
Annual rate over life of contract	6.2	6.3	6.2	8.3	11.5	8.2	8.3	8.5	7.6	9.3	10.3	13.3	12.0

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

[In percent]

Sector and measure	Average annual changes					Average quarterly changes								
	1976	1977	1978	1979	1980 p	1978	1979				1980 p			
						IV	I	II	III	IV	I	II	III	IV
Total effective wage rate adjustment, all industries	8.1	8.0	8.2	9.1	9.3	1.4	1.4	2.6	3.3	1.6	1.5	3.2	3.4	1.2
Change resulting from —														
Current settlement	3.2	3.0	2.0	3.0	3.6	.4	.2	1.1	1.0	.5	.4	1.1	1.6	.5
Prior settlement	3.2	3.2	3.7	3.0	3.1	.5	.6	1.0	1.0	.4	.5	1.2	1.1	.3
Escalator provision	1.6	1.7	2.4	3.1	2.6	.5	.6	.5	1.2	.7	.6	.8	.7	.5
Manufacturing	8.5	8.4	8.6	9.6	9.7	1.9	1.5	2.3	3.2	2.4	1.9	3.4	2.9	1.6
Nonmanufacturing	7.7	7.6	7.9	8.8	9.0	1.1	1.4	2.8	3.4	1.0	1.3	3.0	3.7	1.0

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

37. Work stoppages, 1947 to date

Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (thousands)	In effect during month (thousands)	Number (thousands)	Percent of estimated working time
1947	3,693		2,170		34,600	.30
1948	3,419		1,960		34,100	.28
1949	3,606		3,030		50,500	.44
1950	4,843		2,410		38,800	.33
1951	4,737		2,220		22,900	.18
1952	5,117		3,540		59,100	.48
1953	5,091		2,400		28,300	.22
1954	3,468		1,530		22,600	.18
1955	4,320		2,650		28,200	.22
1956	3,825		1,900		33,100	.24
1957	3,673		1,390		16,500	.12
1958	3,694		2,060		23,900	.18
1959	3,708		1,880		69,000	.50
1960	3,333		1,320		19,100	.14
1961	3,367		1,450		16,300	.11
1962	3,614		1,230		18,600	.13
1963	3,362		941		16,100	.11
1964	3,655		1,640		22,900	.15
1965	3,963		1,550		23,300	.15
1966	4,405		1,960		25,400	.15
1967	4,595		2,870		42,100	.25
1968	5,045		2,649		49,018	.28
1969	5,700		2,481		42,869	.24
1970	5,716		3,305		66,414	.37
1971	5,138		3,280		47,589	.26
1972	5,010		1,714		27,066	.15
1973	5,353		2,251		27,948	.14
1974	6,074		2,778		47,991	.24
1975	5,031		1,746		31,237	.16
1976	5,648		2,420		37,859	.19
1977	5,506		2,040		35,822	.17
1978	4,230		1,623		36,922	.17
1979	4,827		1,727		34,754	.15
1979 December	149		45		2,424	.13
1980 pr: January	304		169.6		3,222	.17
February	332		77.4		3,131	.19
March	326		98.4		3,230	.16
April	357		98.1		2,579	.14
May	388		116.2		2,099	.10
June	385		173.1		2,441	.13
July	414		241.1		3,954	.21
August	374		79.8		3,079	.15
September	420		125.7		3,407	.20
October	347		89.6		2,195	.11
November	201		51.9		1,110	.06
December	66		17.5		617	.03

pr = preliminary revised.

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