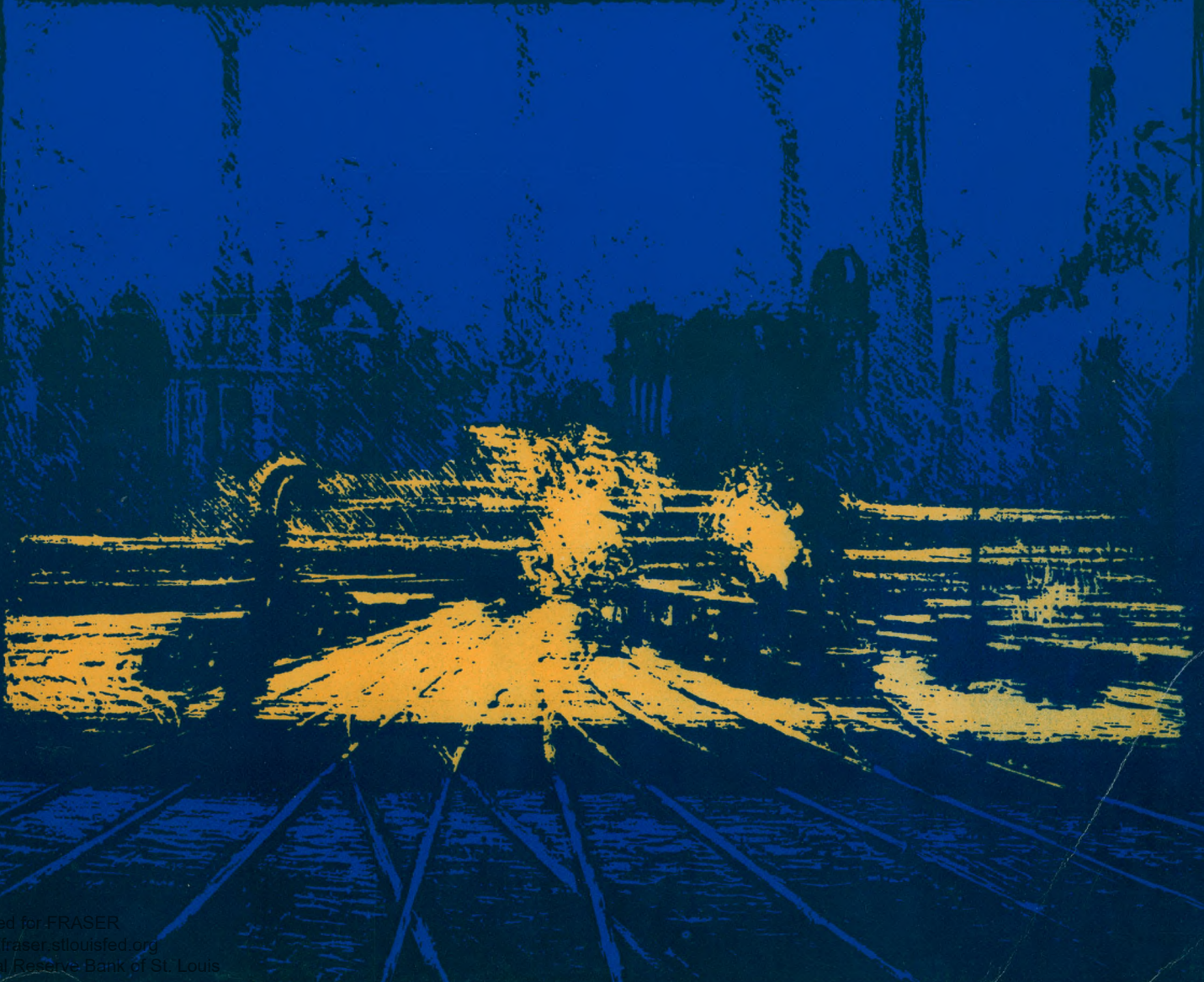




MONTHLY LABOR REVIEW

U.S. Department of Labor  
Bureau of Labor Statistics  
September 1981

*In this issue:*  
Three articles  
on measuring inflation





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# Labor Month In Review



**MEASURING PRICES.** The wide use of the Consumer Price Index for adjusting payments to changes in consumer prices has made the CPI a frequent topic of public discussion. Is the CPI an accurate measure of inflation? Would use of another measure for indexing raise or lower the payments? What is the underlying rate of inflation and how is it measured? Three articles in this issue of the *Review* examine these questions.

Commissioner of Labor Statistics Janet L. Norwood also addressed these questions in a guest column in the *Washington Post* on August 21. Excerpts:

As the agency that compiles the Consumer Price Index, the Bureau of Labor Statistics is aware of the CPI's limitations. But we also are aware of, and concerned about, criticism that is based on lack of understanding of indexation arrangements. Our role at BLS is to find the CPI's limitations and try to overcome them. We leave to others the solution of policy issues related to indexation.

The Consumer Price Index measures the change in price of a fixed market basket of goods and services. The CPI is a good measure of price change, but, like any other statistical measure, it is not perfect. The imperfections have received much criticism in recent years because the index has been widely used in income escalation. It is important to note, however, that the critics often disagree among themselves. Those who receive income tied to the index frequently feel that prices are rising faster than the CPI. They argue that the CPI is too low. Those responsible for funding indexed payments find that the cost of indexation is large. They argue that the CPI is too high. And, government officials fear that the indexed payments will raise costs and help to fuel inflation.

The most common technical criticisms of the CPI are (1) the items priced for the

index are those purchased in the base year, not those currently bought and (2) the CPI overstates the price of homeownership.

**The fixed market basket.** The CPI is based upon a market basket of goods and services purchased in a base period. The basket now in use is based upon a survey of what consumers purchased in 1972 and 1973. BLS practice has been to stick with a market basket until a major revision of the index occurs—about every 10 to 12 years. The market basket is kept constant deliberately because we measure price changes, not changes that may occur in living standards.

In recent years, as prices have risen, some have argued that the CPI market basket has become outdated. They contend that, because rational consumers shift the quantities of the things they buy when the relative prices of them change, the CPI might overestimate the cost of maintaining current living standards.

Most research indicates that these shifts in consumer purchases have not usually created large differences in price indexes in the past. To evaluate this question more fully, however, we have begun field collection of a continuing consumer expenditure survey. In a few years, when this survey is fully in place, BLS will be able to monitor continuously the degree to which consumers change their consumption patterns. Then, we will be able to determine when future revisions of the CPI weights are needed and will have at hand the data needed to revise the market basket.

**Owner-occupied housing.** The measurement of owner-occupied housing has been troublesome for many years. The basic problem is to determine what the index should measure.

The present CPI views a house both as

an asset that can be resold and as a home in which the owner lives and consumes housing services. The index measures month-to-month changes in prices of five expenditures of owning a home—house prices, contracted mortgage interest, property taxes, insurance, and maintenance and repairs. The total weight for homeownership under this approach is large, about 23 percent of the entire index.

**Experimental alternatives.** More than a year ago, BLS began publishing five experimental indexes reflecting different concepts and measurement approaches. All exclude the asset value of an owned home and give a much smaller weight to the homeownership component.

We also are evaluating the effect on the CPI of variable rate mortgages and reviewing problems inherent in the shrinking size of the Federal Housing Administration data base of house prices used in the CPI.

These technical issues, however, must not be confused with the goals of indexation. If the goal is to keep real income constant, one should not be surprised when the income share of the indexed group rises relative to a group whose income is not indexed. The statistical measure used as the mechanism should not be blamed for an indexation policy that produces unexpected results.

The CPI is one of the government's most important measures, affecting the incomes of millions of people who receive government payments or work under union contracts. It must have both continuity and credibility.

Before it is changed, there should be full advance notice and opportunity for public discussion. It has been customary to revise the index every 10 years or so. The last major revision was in 1978. The next is now in the planning stage. □

# Reconciling the CPI and the PCE Deflator

*New analysis compares the CPI and the PCE Deflator and quantifies the effect on the inflation measures of the treatment of owner-occupied housing, the weights assigned products and services, and other factors in index number construction*

JACK E. TRIPLETT

The Federal Government produces two major inflation measures for consumption goods and services. The Consumer Price Index (CPI), published by the Bureau of Labor Statistics, is the most widely used aggregate price index, as well as the major source of information on price trends for individual consumption goods and services. An alternative aggregate consumption inflation measure, the Implicit Price Deflator for Personal Consumption Expenditures (PCE Deflator), published by the Bureau of Economic Analysis, is a by-product of the construction of the National Income and Product Accounts.

For at least a decade, users have noted that the CPI and the PCE Deflator often give different measures of the rate of inflation. "How," these users ask, "can we reconcile the difference between the CPI and the PCE Deflator?" This article provides an answer to that question.

## Alternative price measures

The price information used by the Bureau of Economic Analysis (BEA) in constructing its price measures is largely based on detailed CPI price indexes: 85 of the Deflator's 115 components are taken directly from the

CPI. Accordingly, the basic measures of price trend for most specific consumption commodities are common to both aggregate price measures. Differences in the movement of aggregate indexes can reflect how the basic price data are used—in other words, how the aggregate indexes are constructed.

Both the Bureau of Labor Statistics and the Bureau of Economic Analysis publish alternative aggregate indexes, in which many of the basic price data are handled differently, to suit different purposes. The BLS now publishes two official CPI's—the CPI for all Urban Consumers (CPI-U) and the CPI for Urban Wage Earners and Clerical Workers (CPI-W). It also publishes five "experimental" CPI indexes that contain alternative treatments of owner-occupied housing: these are designated CPI-U-X1 through CPI-U-X5 in the monthly CPI press release and in the periodical, *CPI Detailed Report*.

The BEA arranges the basic price information used in the personal consumption expenditures sector of the National Accounts into three alternative aggregate price measures—in addition to the Implicit Deflator for Personal Consumption Expenditures are two alternatively weighted price measures for personal consumption expenditures. These are described more fully later in the article.

Accordingly, 10 different aggregate consumption expenditure price measures are regularly published by the

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Federal Government. Because several price measures are published, the analyst can use them to determine the effect of particular differences in index number construction on the measured inflation rate.

### Sources of difference in inflation rates

The difference in the inflation rates indicated by any two of the BLS and the BEA price measures can be attributed to three factors, described in the following sections.

*Owner-occupied housing.* The treatment of owner-occupied housing (and a few other products) varies. The two official CPI's price houses and the costs of acquiring and operating a house. All BEA price indexes (as well as the CPI-U-X1 index) use the CPI rent index as a measure of the monthly cost of living in a house.

*Different index weights.* Weighting differences among BLS and BEA price measures can be broken down into two sources: (1) weighting differences stemming from differences in index definition and (2) weighting differences associated with different periods selected for determining the weights.

CPI weights refer to expenditures by a population of either urban wage and clerical workers (CPI-W) or of all urban consumers (CPI-U and all five of the experimental CPI indexes), and all are derived from an expenditure survey. The PCE consumption definition is broader than either CPI definition, adding to the expenditures of CPI-U's urban consumer, expenditures of rural household and expenditures by nonprofit organizations. In addition, its weights are drawn from the National Accounts.

With respect to differences in periods, all versions of the CPI currently use 1972-73 as the weighting period. (Before January 1978, they employed weights based on a 1960-61 survey.) BEA price indexes are available with weights for a variety of periods, including 1972 weights, current period weights, and an index in which weights are always drawn from the period just prior to the one for which the index is published.

*Other factors.* The price information incorporated into the indexes differs somewhat because the BEA price indexes do not use a few CPI price index components and include some non-CPI price data (mainly from the BLS' Producer Price Index and some price imputations carried out by the BEA). In any price index computation various technical factors may be handled differently by the compilers (for example, seasonal adjustment). In some cases, the net effect of these "compilation decision" differences may cause divergence in aggregate measures though it is often hard to make a comprehensive listing, and even harder to determine the effect of each factor separately. In the past, divergences in the

CPI and the BEA price measures have been associated with such factors.<sup>1</sup> But recent revisions and improvements in the Personal Consumption Expenditures sector of the accounts have undoubtedly greatly diminished their importance.

In order to reconcile the various inflation measures obtained from BLS and BEA, the present article presents a method for decomposing the difference between the CPI-U and the BEA's PCE price measures into the factors just discussed. The methodology is somewhat different from the well-known "reconciliation" tables published quarterly by the BEA.<sup>2</sup> Its objective is to derive simple and straightforward measures of the empirical importance of those factors—such as housing and index weights—that recently have become issues in the measurement of inflation.

In summary, in recent years the treatment of housing costs is the largest quantitative contributor to divergence in the price measures. The difficulty of measuring costs of owner-occupied housing has been discussed at length in recent articles.<sup>3</sup> Five alternative treatments of owner-occupied housing are contained in experimental CPI indexes published monthly in the CPI press release and the *CPI Detailed Report*.

In addition, the article discusses the effect of "updating" index weights from the early 1970's period to a more nearly current one. Alternative weighting schemes show that weighting effects do make perceptible differences in the measurement of inflation, but not nearly so much as is sometimes assumed—around four-tenths of a percentage point (0.4) for the double-digit inflation year of 1980. The seemingly widespread impression, reported in the press and elsewhere, of a significantly larger weighting effect arises from making a common misinterpretation of the information in the PCE Deflator. For this reason, the article includes material on interpreting price indexes which use alternative formulas and weighting schemes.

### CPI and PCE deflator formulas

All versions of the CPI are computed according to what is known as a "Laspeyres formula."<sup>4</sup> In its purest form, a Laspeyres price index takes its weights from the earlier of any two years being compared, but in practice a particular weighting period is chosen and held constant for several years. Currently, the CPI weights are drawn from the Consumer Expenditure Survey of 1972-73.

The Implicit PCE Deflator is a "Paasche formula" price index.<sup>5</sup> The Paasche index takes its weights from the current period (that is, the period for which the index is computed), and for this reason, the PCE Deflator is often referred to as a "current weighted" index. At the present time, the PCE Deflator contains 115 components to which current weights are applied, an improvement over the earlier computational system described

by Gregory Kipnis<sup>6</sup>, and the reference point for price comparisons is always 1972.<sup>7</sup> The accompanying tables are based on the most recent revised PCE price data, released in April 1981.

Alternative aggregate price measures compiled by the BEA use the Laspeyres price index formula. These indexes are described more fully in later sections of this article.

### Step-by-step comparison of the measures

Alternative versions of the CPI and the BEA's price measures can be used to quantify the separate effects of the three factors mentioned in the introduction: (1) treatment of owner-occupied housing, (2) weighting differences associated with different weighting periods, and (3) an "all other" factor (which includes weighting differences associated with different index definitions). Table 1 is arranged to facilitate a step-by-step identification of the effect of each of these factors on the inflation measurement, over the 1972-80 period.

The 1972-80 period is used in table 1 because the current-weight PCE Deflator is properly interpreted only as a measure of price change from 1972 to some later quarter or year (for example, the price change from 1972 to 1979, or from 1972 to 1980). It does not measure the 1978-79 or the 1979-80 rate of price change, nor does it measure the price change from one quarter or month to the next, contrary to mistaken impressions of many price index users. (This point is more fully developed in the Appendix.) The 1972-80 period chosen for table 1 is determined by the nature of the computational methods for the PCE Deflator; however, a comparison of period-to-period price changes is presented in a subsequent section.

An estimate of the effect of the treatment of housing

on inflation measures can be obtained by comparing movements in indexes which differ *only* in the way owner-occupied housing costs are measured. The all-urban CPI (CPI-U) and the five BLS experimental indexes differ only in their owner-occupied housing components, and of the five, the relevant one for our purposes is CPI-U-X1 (for convenience, this designation is shortened to "CPI-X1" for the remainder of the article). In the CPI-X1 index both the weight and the price measure for owner-occupied housing are determined, in principle, by assuming that the monthly cost of owner-occupied housing can be approximated by the rent that would be paid if the house were in fact rented. This is often known as the "rental equivalence" method for measuring the cost of owner-occupied housing and is the concept also employed in all the BEA consumption price measures.

In practice, all existing "rental equivalence" housing measures (BLS or BEA) use the CPI rent index, which, because it is designed as a price measure representative of the types of units that are in fact rented is heavily weighted toward apartments; it contains a far smaller proportion of houses (for example) than would a rent sample that was designed as a rental equivalence measure. Whatever deficiencies the present CPI rent index may have as a measure of rental equivalence for owner-occupied housing, these deficiencies are shared equally by the CPI-X1 and all BEA price measures; the use of the CPI rent index in lieu of a true rental equivalence measure does not in any way distort the comparison of the CPI and the PCE Deflator, which is the question under study in this article.

The housing comparison for the 1972-80 period is contained in lines (1) through (3) of table 1. Because the indexes are based on 1972 (that is, 1972=100), line (3) of table 1 shows the cumulative effect created by dif-

**Table 1. Comparison of cumulative changes in CPI indexes and Personal Consumption Expenditures price measures, 1972 to the date shown (1975-80)**

[1972=100]

Measure	1975	1976	1977	1978	1979	1980	1979				1980			
							I	II	III	IV	I	II	III	IV
(1) CPI-U <sup>1</sup>	128.7	136.1	144.9	156.0	173.6	197.0	165.7	170.8	176.2	181.9	189.2	195.4	198.8	204.6
(2) CPI-X1 <sup>1</sup>	126.5	133.8	142.3	152.0	166.6	185.3	160.2	164.4	168.8	173.2	178.7	183.1	187.2	192.0
(3) Difference, CPI-U minus CPI-X1 (housing effect)	2.2	2.3	2.6	4.0	7.0	11.7	5.5	6.4	7.4	8.7	10.5	12.3	11.6	12.6
(4) CPI-X1 <sup>1</sup>	126.5	133.8	142.3	152.0	166.6	185.3	160.2	164.4	168.8	173.2	178.7	183.1	187.2	192.0
(5) PCE: 1972-Weight <sup>2</sup>	126.2	132.9	141.3	151.5	166.0	184.3	160.2	163.7	167.8	172.4	177.8	182.1	186.3	190.8
(6) Difference, CPI-X1 minus PCE:1972-Weight (other effect)	0.3	0.9	1.0	0.5	0.6	1.0	0.0	0.7	1.0	0.8	0.9	1.0	0.9	1.2
(7) PCE: 1972-Weight <sup>2</sup>	126.2	132.9	141.3	151.5	166.0	184.3	160.2	163.7	167.8	172.4	177.8	182.1	186.3	190.8
(8) PCE: Current-Weight <sup>2</sup>	125.2	131.6	139.5	149.1	162.3	178.9	157.1	160.2	163.8	168.0	172.9	177.0	180.7	184.9
(9) Difference, PCE:1972-Weight minus PCE: Current- Weight <sup>2</sup> (weighting effect)	1.0	1.3	1.8	2.4	3.7	5.4	3.1	3.5	4.0	4.4	4.9	5.1	5.6	5.9

<sup>1</sup> Annual data for the CPI-U and CPI-X1 were computed by the Office of Research and Evaluation (BLS) from unadjusted monthly data provided by the Office of Prices and Living Conditions (BLS). The quarterly data for 1979 and 1980 were computed by the Office of Research and Evaluation employing seasonally adjusted monthly data provided by the Office of Prices and Living Conditions.

<sup>2</sup> Data for the "PCE: 1972-weight" and "PCE: current-weight" indexes were provided by the Bureau of Economic Analysis, U.S. Department of Commerce. The data incorporate revisions released by BEA in April 1981.

ferences in owner-occupied housing treatments from 1972 to each of the years tabulated. For example, between 1972 and 1980, the alternative treatment of owner-occupied housing that is embodied in the CPI-X1 resulted in a total difference of 11.7 index points (roughly 13 percent of the measured 1972-80 price increase), in comparison with the official CPI-U.<sup>8</sup>

Of course, the CPI and PCE price measures differ in other respects as well. To determine the importance of those other factors on the inflation measure, we use the same technique already used to isolate the effect of housing: we look for alternative versions of the price measures that will differ only in one or a small number of respects, and use the difference between closely related indexes to show the effect of one factor or group of factors, holding all other factors constant.

The BEA publishes a price index which is quite close to the CPI-X1 index in many respects. This index is commonly known as the "Personal Consumption Expenditures: Fixed-Weighted Price Index." It is a Laspeyres-formula price index, using the same price measures that are found in the Implicit PCE Deflator, but in which major components are weighted by consumption patterns of 1972. To facilitate discussion of the effect of different weighting periods, we will refer to this index as the "PCE 1972-weight" price index.<sup>9</sup>

The CPI-X1 index and the PCE-1972 index both measure owner-occupied housing by a rental equivalence method using the CPI rent index, and both are base-weighted Laspeyres-formula indexes, drawing their weights from roughly the same 1972-73 period. As lines (4) through (6) of table 1 show, these two most comparable versions of the CPI and the PCE Deflator give measures of inflation that usually agree fairly closely. Over the 1972-80 interval, they differed by only 1.0 index point.

One way to interpret the 1.0 index point difference between the CPI-X1 and PCE 1972 weight indexes is that the difference captures the net effect of all the differences between the CPI and the PCE Deflator *other than* choice of weighting period and treatment of owner-occupied housing.<sup>10</sup> Line (6) shows that those "other factors" made a relatively small net difference in the inflation measures for most recent years.

In drawing inferences about movements of the CPI-X1 and PCE 1972-weight indexes (or comparing any versions of the CPI and PCE price measures) users should bear in mind that the PCE price measures are subject to revision well after they are published. The 1980 GNP revisions, for example, changed the PCE-1972 index (and also gave it, for the first time, a consistent Laspeyres weighting system for all its 115 components). GNP revisions can sometimes change the PCE price measures substantially; in some cases revisions reduce the discrepancy between the CPI (which is not revised) and the

PCE 1972-weight index, but in other cases the revised figures show a greater discrepancy than was apparent from earlier data.<sup>11</sup> For analytical purposes, data which are revised to show the latest available information or to reflect improved methodology are generally preferred, but escalation users normally prefer series which are not subject to revision.

### Effect of "updating" the weights

The present CPI weights refer to consumption patterns of 1972 and 1973, but many changes have occurred since then. For example, the price of energy has risen greatly since 1972-73, and consumers have made many adjustments (such as switching to more fuel-efficient cars to reduce purchases of gasoline, and buying more insulation, storm windows and so forth to save on heating fuel). If the index weights were updated to reflect more recent expenditure patterns, how much difference would it make on the price index measure? This important question has sparked much recent speculation.

Though one cannot at present recompute the CPI using weights for a more recent period,<sup>12</sup> the effect of weighting pattern differences on price index measurements can be estimated from comparing alternative weighting patterns in PCE price measures. The Implicit PCE Deflator (which for simplicity we will call the "PCE current-weight" index) differs from the PCE 1972-weight index *only* in having different weights. The PCE current-weight index for any quarter or year uses weights for that quarter or year; the PCE 1972-weight index always uses 1972 weights. Because all 115 component price indexes included in each aggregate PCE index are the same, comparing these two aggregate indexes provides an estimate of the effect of weighting differences over the entire 1972-80 period. Such a comparison is shown in lines (7) to (9) of table 1.

Comparison of the two PCE indexes should be interpreted with care. Each of the "differences" tabulated in table 1 represents the cumulative effect from 1972 to the date entered in the column heading, and not the influence of the factor for a single year alone. For example, the figures entered for the year "1980" show that prices have risen by a little over 80 percent since 1972 using 1972 weights (actually, 84.3 percent); use of 1980 weights yields an inflation measure a little under 80 percent, over the same period (actually, 78.9 percent). Thus, weighting effects are estimated to account for 5.4 percentage points (184.3 less 178.9) in the inflation measure over the entire 8-year period. To put it another way, the effect of "updating" the weights in the personal consumption expenditures price measure is to reduce the measure of inflation by around 5 to 5½ percentage points. One should bear in mind, however, that under



either measure inflation has totaled around 80 percent between 1972 and 1980, so that the "weighting effect" is roughly 6 percent of the measured inflation over the entire period.

The figure for 1979 has a similar interpretation. Because the weights for the PCE current-weight index change each year, the 1979 PCE current-weight index has 1979 weights. Thus, line (9) shows that "updating" the weights from 1972 to 1979 causes a difference of around 3½ to 4 percentage points over that 7-year interval, during which the total measured inflation was somewhat above 60 percent (66.0 percent and 62.3 percent, by the two alternative measures). The "weighting effect" accordingly amounts to roughly 5½ percent of the 1972-79 inflation.

The weighting effect becomes smaller when the periods from which weights are drawn are closer together. At 2.4 percentage points in 1978, it was only about 4 to 5 percent of the 1972-78 inflation, and around 4 percent of the inflation experienced between 1972 and 1975 (1.0 percent, compared with a total of roughly 25-percent inflation between those years).

The evidence, then, is consistent with what is usually expected: as the period between weights lengthens, the effect of reweighting the index becomes greater. However, even over an 8-year period which has seen major changes in energy and other prices, the maximum measurement effect of weight updating comes to only around 6 percent of the total of inflation that occurred.

It should be emphasized that comparisons of reweighted versions of the PCE price measures can only give an impressionistic sense of what would happen to the CPI if its weights were updated. Reweighting the CPI might produce larger or smaller effects than those shown in table 1. Unfortunately, we cannot perform the same experiment on the CPI, because that would require current expenditure data to update the weights, and such data are not currently available.

In summary, weighting effects occur in price index measurements, and they have been relatively large in the past two years by historical standards. But perspective on the importance of the weighting effect requires considering the following facts:

- If the difference between PCE indexes using different weights is high in the past two years, the rate of inflation was also at a postwar high; the weighting effect, relative to the measure of inflation, may therefore be little more than it has been in the past, and our confidence in the statistical reliability of any index measurement is couched in relative terms.
- The weighting effect shows the difference between two price indexes which have different weights. It does not imply that one index is "right" and the other "wrong," for they are both valid price measures

that are designed for slightly different objectives. (This is discussed in greater detail in the section on "Reconciliation.") Furthermore, these weighting effects are the gross effects of reweighting and do not provide a measure of the "substitution" effect in fixed weight price indexes (the error introduced because these indexes make no allowance for consumer substitution toward goods whose prices have risen less rapidly). The "substitution effect" is undoubtedly considerably smaller than the gross weighting effect between two alternatively weighted price indexes. (See the Appendix for additional discussion of this point.)

- The weighting effect shown on line (9) is smaller than the sum of the other two "effects" shown in table 1. The effect of housing treatment plus the "all other" CPI-PCE structural differences (lines 3 and 6) exceeds the weighting effect for every single period tabulated in table 1.

### An alternative step-by-step comparison

Of course, price indexes are not used solely to make long-term comparisons, such as the 1972-80 comparisons considered so far. One also needs price indexes to answer questions such as, "How much inflation occurred between 1979 and 1980?" Or, "What was the inflation rate for the first quarter of 1981?"

Annual, quarterly, or monthly inflation rates are normally computed by taking percentage changes in the published index numbers. This practice has become so commonplace that one hardly thinks about the justification for doing it. However, of the two index number formulas in widespread use—Paasche and Laspeyres—only the Laspeyres formula will give measures of price change covering intervals other than the index number reference year or "base." As explained in detail in the Appendix, a Paasche formula price index using current-period weights and published for a reference year of 1972 (as is the Implicit PCE Deflator) cannot be used to compute inflation measures for some other period. That is, if one has the value of the PCE current-weight index for (say) 1980 and the value of the same index for 1979—both of which are index numbers expressed in relation to the 1972 price level—one cannot take the change in those two index numbers to be the price change between 1979 and 1980. Similarly, changes in quarterly values of the Implicit PCE Deflator (as, for example, fourth quarter, 1980 to first quarter, 1981) cannot be interpreted as measures solely of price change between those quarters. Many economists have used the quarterly or annual change in the Implicit PCE Deflator as if it were a measure of price change comparable to other price index numbers, but this can sometimes give a very misleading impression. This issue, a technical one, is

explained in greater detail in the Appendix.

Fortunately, for those who wish to make year-to-year (or quarter-to-quarter) comparisons, the BEA publishes two alternative price indexes which are intended to provide measures of period-to-period price change. Each one uses the same price data as the PCE Deflator. We make use of these two alternative PCE price indexes in the present section, which carries out a step-by-step comparison between CPI and PCE measures of period-to-period price change.

The information in lines (1) to (3) and (4) to (6) of table 2 is comparable to the data shown on the same lines of table 1. Table 1 showed the effects of housing treatment, weight updating, and "all other" factors on the discrepancy between the PCE's and the CPI's measurement of inflation over the entire interval 1972-80; table 2 shows the effects of these three factors on *period-to-period* changes (annual and quarterly).

As was the case in table 1, comparing the changes in the CPI-U and in the CPI-X1 isolates the effect of alternative housing treatment on the price measurement, for the CPI-X1 measure treats housing in exactly the same way as do the PCE price measures.

Line 3 of table 2 shows that the alternative treatment of housing in CPI-U and CPI-X1 indexes makes a difference of 1.7 and 2.3 percentage points in the 1979 and 1980 measures of inflation. Differences were somewhat greater in the quarterly figures than in the annual ones. Of course, under other conditions the CPI-X1 may not differ from CPI-U by the same amount, and indeed, one should not expect that the CPI-X1 will always show a lower rate of inflation than the official CPI-U.<sup>13</sup>

As noted earlier, the CPI-X1 index shares many common points with the form of the PCE price measure that uses 1972 weights: both are indexes computed using the Laspeyres formula, both take their weights from roughly the same period, and both treat housing in identical ways. As Laspeyres formula indexes, both can therefore

be used to compute period-to-period changes (see the Appendix). A comparison of changes in these two indexes provides a measure of the effect of "all other" factors—other than housing treatment and choice of weighting period—in index number construction.

As was true for the 1972-80 comparison shown in table 1, the "other factors" have not usually made a big impact on inflation measurement. For example, the 1979 annual changes do not differ at all, and the 1980 changes differ by only 0.2 percentage points—see line (6) of table 2. However, the 1975-76 annual figures (affected by the GNP revisions) and some of the 1979 quarterly changes are larger than others: the 1979 second quarter, for example, reached 1.6 percentage points.

Once assured that the CPI-X1 and PCE 1972-weight indexes usually give similar inflation measures, we can use a reweighted PCE price measure to determine the effect of weighting updates on price index measurement. This time, however, we chose a PCE price measure that can be used for period-to-period comparisons. The index chosen is usually referred to as the "Personal Consumption Expenditure: Chain Price Index." For convenience, we refer to it as the "PCE chain-weight index."

The PCE chain-weight index also uses the Laspeyres formula (as does the PCE 1972-weight index). However, the PCE chain-weight index always has weights taken from the first of any two periods being compared. For example, the PCE chain-weight index which measures price change between 1979 and 1980 uses 1979 weights, the measure of price change between 1978 and 1979 uses 1978 weights, and so on. The PCE 1972-weight index and the PCE chain-weight index are alike in every way (same Laspeyres formula, same 115 price index components, and so on) except for the period from which their weights were drawn. Their close similarity means that comparing the two provides an estimate of how updating Laspeyres weights would affect period-to-period price index measurements.<sup>14</sup>

Table 2. Comparison of percent changes in CPI indexes and Personal Consumption Expenditures price measures, 1975-80

Measure	1975	1976	1977	1978	1979	1980	1979 <sup>1</sup>				1980 <sup>1</sup>			
							I	II	III	IV	I	II	III	IV
(1) CPI-U <sup>2</sup>	9.1	5.8	6.5	7.7	11.3	13.5	11.1	12.9	13.3	13.7	16.9	13.6	7.2	12.2
(2) CPI-X1 <sup>2</sup>	8.3	5.7	6.4	6.8	9.6	11.2	9.7	10.8	11.2	10.9	13.3	10.1	9.4	10.5
(3) Difference, CPI-U minus CPI-X1 <sup>2</sup> (housing effect)	0.8	0.1	0.1	0.9	1.7	2.3	1.4	2.1	2.1	2.8	3.6	3.5	-2.2	1.7
(4) CPI-X1 <sup>2</sup>	8.3	5.7	6.4	6.8	9.6	11.2	9.7	10.8	11.2	10.9	13.3	10.1	9.4	10.5
(5) PCE: 1972-Weight <sup>3</sup>	7.8	5.3	6.3	7.2	9.6	11.0	10.3	9.2	10.4	11.4	13.2	9.9	9.5	10.1
(6) Difference, CPI-X1 minus PCE: 1972-Weight (other effect)	0.5	0.4	0.1	-0.4	0.0	0.2	-0.6	1.6	0.8	-0.5	0.1	0.2	-0.1	0.4
(7) PCE: 1972-Weight <sup>3</sup>	7.8	5.3	6.3	7.2	9.6	11.0	10.3	9.2	10.4	11.4	13.2	9.9	9.5	10.1
(8) PCE: Chain-Weight <sup>3</sup>	7.7	5.3	6.3	7.1	9.3	10.6	9.8	8.8	9.9	10.9	12.5	9.7	9.5	10.1
(9) Difference, PCE: 1972-Weight minus PCE: Chain- Weight (weighting effect)	0.1	0.0	0.0	0.1	0.3	0.4	0.5	0.4	0.5	0.5	0.7	0.2	0.0	0.0

<sup>1</sup> Seasonally adjusted annual rates.

<sup>2</sup> Annual and quarterly changes in the CPI-U and CPI-X1 are taken from tables provided by the Office of Prices and Living Conditions, Bureau of Labor Statistics. The changes are compiled from 1967-based indexes.

<sup>3</sup> Data for the "PCE: 1972-weight" and "PCE: chain-weight" indexes were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce. The data incorporate revisions released by BEA in April 1981.

**Table 3. "Reconciliation" of annual and quarterly percent changes in the CPI-U and the Personal Consumption Expenditure price measures, 1975-80**

Difference	1975	1976	1977	1978	1979	1980	1979				1980			
							I	II	III	IV	I	II	III	IV
Total difference <sup>1</sup>	1.4	0.5	0.2	0.6	2.0	2.9	1.3	4.1	3.4	2.8	4.4	3.9	-2.3	2.1
Housing treatment <sup>2</sup>	0.8	0.1	0.1	0.9	1.7	2.3	1.4	2.1	2.1	2.8	3.6	3.5	-2.2	1.7
Weighting effect <sup>3</sup>	0.1	0.0	0.0	0.1	0.3	0.4	0.5	0.4	0.5	0.5	0.7	0.2	0.0	0.0
"All other" effect <sup>4</sup>	0.5	0.4	0.1	-0.4	0.0	0.2	-0.6	1.6	0.8	-0.5	0.1	0.2	-0.1	0.4

<sup>1</sup> For each year, the change in CPI-U minus the change in PCE: Chain-Weight index (from table 2, line (1) minus line (8)).

<sup>2</sup> For each year, the change in CPI-U minus the change in CPI-X1, (from table 2, line (3)).

<sup>3</sup> For each year, the change in PCE: 1972-Weight index minus the change in PCE: Chain-Weight index (from table 2, line (9)).

<sup>4</sup> For each year, the change in CPI-X1, minus the change in PCE: 1972-Weight index (from table 2, line (6)).

Lines (7) to (9) of table 2 provide this information. The entry for 1980 on line (9) shows the difference (0.4 percentage points) between 1980's inflation rate using 1972 weights (11.0 percent) and the rate for the same year, measured with 1979 weights (10.6 percent). The rest of line (9) requires careful interpretation because the PCE chain-weight index weights change every year. The 0.3-percentage point figure on line (9) in the 1979 column refers to the difference between the inflation rates for 1979 when calculated using 1972 and 1978 weights (9.6 and 9.3 percent, respectively). Similarly, the 1976 figure shows there was no difference between the inflation rate for that year using alternative 1972 and 1975 weights (both 5.3 percent).

Reading line (9) from left to right shows how the weighting effect grows as weighting periods move further apart. As the table shows, the two PCE price indexes were once very close together, but as the period between weights lengthens, the weighting effect becomes larger. For the entire year 1980, when both PCE indexes were indicating an inflation rate in excess of 10 percent, weighting differences created a divergence of 0.4 percentage points. The quarterly data show an interesting pattern: in the peak inflation quarters in the last half of 1979 and first half of 1980 the weighting impact was averaging about 0.5 percentage points, at annual rates, but fell back to zero in the final two quarters of 1980.

Historically, differences in weighting patterns have not usually created differences in price index measures as high as half a percentage point, even for fairly short periods. On the other hand, this "weighting effect" must be related to the degree of inflation in the economy. Even in the first quarter of 1980 (when the divergence between the two PCE indexes was running 0.7 percentage points) the difference between the PCE 1972-weight index (13.2 percent) and the PCE chain-weight index (12.5 percent) was not large enough to influence significantly one's perception of the degree of inflation. That is, both indexes showed inflation in the neighborhood of 13 percent, annually, during that quarter.

Looking at all of the sources of differences in CPI and

PCE price measures, table 2 supplies a picture of period-to-period comparisons that is quite similar to the long-term results shown in table 1. Most of the difference between the CPI-U and BEA inflation measures is accounted for by differing treatments of owner-occupied housing. Differences in weights and in "all other" factors have not usually made a substantial impact on the measurement of inflation.

#### "Reconciliation": CPI and PCE price measures

The relationships among the several versions of the PCE price measures and the CPI permit "reconciliation" of the differences in price measurements obtained by BLS and BEA. It should be clear, however, that there are two reconciliations—one for longer-term inflation measurements and one for period-to-period inflation rates.

The data from table 2 can be used to reconcile period-to-period changes in the indexes, in order to answer the question: "What are the reasons the CPI and PCE price measures show different rates of price change from one period to the next?" This reconciliation is provided in table 3.

Except for 1976 and 1977 (when the difference between the two aggregate indexes was small) housing looms as the largest factor in accounting for the difference between the CPI-U and PCE chain-weight indexes—at least half or more of the total. One would expect weighting differences to become more important as the period between weights lengthens, and the table shows that to be the case. But even the largest weighting effects (0.3 percentage point in 1979 and 0.4 percentage point in 1980) are within the range shown in the table for the "all other" factors (which varied from -0.6 to 1.6 percentage points over the period studied).

Table 4 presents a cumulative reconciliation, which is derived from the data in table 1. It answers the question: "What accounts for the cumulative divergence in the CPI and PCE price measures since 1972?" Over the entire 1972-80 period, the CPI-U rose by 97.0 percent, the Implicit PCE Deflator (PCE-current weights) by 78.9 percent. This 18.1-percentage point difference between the two indexes is distributed as follows:

Factor	Percentage points	Percent of total difference
Total	18.1	100.0
Treatment of owner-occupied housing	11.7	65.0
Weighting effects	5.4	30.0
All other factors	1.0	5.0

Again, the treatment of owner-occupied housing clearly accounts for most of the difference in the inflation messages that the two indexes send over the period. Weighting effects grow larger (as expected) as the period between weighting points increases, but weighting effects are never as great as the housing factor.

### Analysis of weighting effects

Some commentators in the press and elsewhere during the past year or so have suggested that the CPI would present a far different picture of inflation if its weights were updated from 1972-73 to some more recent period. To back up their assertion, most of them have merely pointed to factors such as the great runup in energy prices that has taken place since 1972-73 and the energy-saving responses that consumers have made in recent years, leaving the reader with the impression that such changes must introduce massive measurement effects into the indexes. As the preceding sections of this article show, when one turns to the actual numbers, weighting effects on the inflation measure are relatively small.

It is worth considering whether large consumption shifts (which have undeniably occurred) and relatively small weighting effects in the price indexes can plausibly coexist. If consumers have shifted away from products (like energy) whose prices have risen most, why do these consumption shifts produce such small weighting effects on the measurement of consumption costs (for example, less than half a percentage point in 1980's year of double-digit inflation)?

For one thing, it is important to consider how the energy savings have been spent. It has widely been reported, for example, that homeowners have increased expenditures for insulation, storm windows, and so forth

in order to reduce consumption of natural gas, heating oil, and other fuels. Thus, if the 1972-73 quantity weight for fuel is too high for current conditions, the weight for insulation expenditures is too low. To some extent, these weighting effects have offset each other in the measurement of overall home operation costs. In this case, the homeowner had to spend money in order to save money, so the total cost of maintaining a home has not fallen by as much as the full savings on fuel. Looking at the fuel savings without fully considering how those fuel savings were achieved overstates the effect of energy conservation on consumption costs.

Another analytical point should also be noted: any consumption price index is intended to measure the cost of a fixed standard of living (a fixed level of consumption)—or alternatively, a fixed level of consumption goods output. Some consumer responses to energy price increases involve reductions in living standards. Turning down thermostat settings, for example, would probably be regarded as a reduction in living standards by most people. In the popular view, cutting back on heating and doing without things is said to be "holding down the cost of living." Many of the articles in the press which alleged that the CPI was "overstating" the rise in the cost of living made just this mistake—they thought that a reduction in living standards ought to be reflected as a reduced rate of increase in the CPI. And this misconception got translated, somehow, into the notion that updating the CPI weights would show a greatly reduced inflation rate. But a consumption price index should not fall when the consumption or living standard falls, just as the price index does not rise with increasing living standards. The index is intended to measure the cost of a *constant* living standard.

There are, however, weighting effects in price index measurements. For some purposes, even a half point in a double-digit inflation year will be important. Isn't the current-weighted index better, the user might wonder, than one which has weights drawn from 6-8 years ago?

The answer is that neither index is better than the other for all purposes. They simply answer different questions, so one is better for some purposes, the other is superior for some alternative use. To take an exam-

**Table 4. "Reconciliation" of the CPI-U and the Personal Consumption Expenditures price measures: cumulative percent change from 1972 to the date shown (1975-80)**

Difference	1975	1976	1977	1978	1979	1980	1979				1980			
							I	II	III	IV	I	II	III	IV
Total difference (1972 to date shown) <sup>1</sup>	3.5	4.5	5.4	6.9	11.3	18.1	8.6	10.6	12.4	13.9	16.3	18.4	18.1	19.7
Housing treatment <sup>2</sup>	2.2	2.3	2.6	4.0	7.0	11.7	5.5	6.4	7.4	8.7	10.5	12.3	11.6	12.6
Weighting effect <sup>3</sup>	1.0	1.3	1.8	2.4	3.7	5.4	3.1	3.5	4.0	4.4	4.9	5.1	5.6	5.9
"All other" effect <sup>4</sup>	0.3	0.9	1.0	0.5	0.6	1.0	0.0	0.7	1.0	0.8	0.9	1.0	0.9	1.2

<sup>1</sup> For each year, the CPI-U index minus the PCE: Current-Weight index (from table 1, line (1) minus line (8)).

<sup>2</sup> For each year, the CPI-U index minus the CPI-X1 index (from table 1, line (3)).

<sup>3</sup> For each year, the PCE: 1972-Weight index minus the PCE: Current-Weight index (from table 1, line (9)).

<sup>4</sup> For each year, the CPI-X1 index minus the PCE: 1972-Weight index (from table 1, line (6)).

ple, suppose someone retired in 1972 with a pension plan that calls for maintaining the real consumption value of retirement benefits constant at the 1972 level. For this purpose, the 1972-weighted price index is superior to the current-weighted one, because a 1972-weighted price index is designed to provide the answer to the question, "How much would it cost in the current period to buy the average living standard of 1972?"

On the other hand, suppose one wants to obtain a measure of price change between (say) 1979 and 1980. The 1972-weighted index measures the change in cost of 1972's consumption level between 1979 and 1980; a 1979-weighted index (such as the PCE chain-weighted price index) would measure the cost change in 1979's consumption level between the same two years. For many users, the cost change of the more recent consumption bundle is the more relevant one. Note, however, that no government price index computes the current rate of inflation with truly current weights. For example, no price index now exists which computes the 1979-80 price change with 1980 weights, or the change between the first and second quarters of 1981 using the second quarter's weights.

THIS ARTICLE HAS PRESENTED a simple method, involving nothing more than comparing alternative index numbers, for determining the effect of certain differences in

index number construction on the measurement of inflation. The method can be employed by any price index user, as it does not depend on complex computations that can be carried out only within the index-compiling agency nor does it depend on special assumptions. The only requirement is that the user keep in mind what the available alternative aggregate price indexes measure, and use each of them only for comparisons for which it is appropriate.

The nature of Paasche and Laspeyres price index formulas requires two reconciliations—one for longer-term comparisons, and one for period-to-period price index changes. Results, however, are similar in both reconciliations. In recent years, housing has accounted for the greatest part of the difference between alternative price measures. The period chosen for the index weights has a smaller, though perceptible, effect on the aggregate inflation measures. All other factors, taken together, make a quite small difference, even though some of the indexes compared in this article are constructed very differently indeed.

Finally, the article emphasizes that alternative weighting systems for price indexes correspond to alternative questions for which price measurement is required. Indexes with different weights give different measurements because they were designed for slightly different purposes. No single index is best for all purposes. □

FOOTNOTES

<sup>1</sup> Jack E. Triplett and Stephen M. Merchant, "The CPI and the PCE Deflator: An Econometric Analysis of Two Price Measures," *Annals of Economic and Social Measurement*, 2/3, 1973, pp. 263-82.

<sup>2</sup> See "Reconciliation of Quarterly Changes in Measures of Prices Paid by Consumers," *Survey of Current Business*, July 1978, pp. 6-9, 24.

<sup>3</sup> See Janet L. Norwood, *CPI Issues* (BLS Report 593, 1980); Robert Gillingham, "Estimating the user cost of owner-occupied housing," *Monthly Labor Review*, February 1980, pp. 31-35; Alan S. Blinder, "The Consumer Price Index and the Measurement of Inflation," *Brookings Papers on Economic Activity* 2, 1980, pp. 539-73; and Council of Economic Advisers and Office of Management and Budget, *Report on Indexing Federal Programs*, excerpted as "Indexing Federal programs: the CPI and other indexes," *Monthly Labor Review*, March 1981, pp. 60-65.

<sup>4</sup> The Laspeyres index for any month is symbolized by:

$$I_{ot} = \frac{\sum p_t q_o}{\sum p_o q_o} = \sum \left[ \frac{p_t}{p_o} \right] \left[ \frac{p_o q_o}{\sum p_o q_o} \right]$$

where  $p_t$  is the current month's price for each item included in the index,  $p_o$  is the base or reference-period price, and  $q_o$  is the quantity of the item purchased in the base or reference period. The quantity ( $p_o q_o / \sum p_o q_o$ ) in the right-hand side is the share of total expenditure accounted for by each item in the base or reference period. As noted elsewhere in the article, the formula is modified for actual computations; it is frequently used to make statements about price change beginning from some period other than the one chosen for the weights.

<sup>5</sup> The Paasche price index is computed by the formula (the symbol definitions are the same as in footnote 4).

$$I_{ot} = \frac{\sum p_t q_t}{\sum p_o q_t}$$

<sup>6</sup> Gregory Kipnis, "Implicit Price Index (IPI)," Appendix C in Jules Backman and Martin R. Gainsbrugh, *Inflation and the Price Indexes* (Washington, D.C., U.S. Congress, Joint Economic Committee, July 1966).

<sup>7</sup> That is,  $p_o$  in footnote 5 is always taken to be prices in 1972, with  $p_t$  and  $q_t$  measured at the current-period levels.

<sup>8</sup> This total of 11.7 index points represents the combined contribution of two effects: (1) the owner-occupied housing cost measure is different (and the one in CPI-XI has risen more slowly than the one in CPI-U), and (2) the weight for owner-occupied housing is lower in CPI-XI, than in CPI-U. See Norwood, *op. cit.* for more information.

<sup>9</sup> In the price index literature the term "fixed-weight index" is most commonly used to distinguish price index formulas that hold the weights fixed in both numerator and denominator of the price index calculation. In this sense, all the indexes discussed in the present article are "fixed-weight indexes" for Paasche as well as Laspeyres formulas have fixed weights. The "true cost of living index" is an example of a price index which does not necessarily have fixed weights in its formula. (See Steven D. Braithwait, "The Substitution Bias of the Laspeyres Price Index: An Analysis Using Estimated Cost-of-Living Indexes," *American Economic Review*, March 1980, pp. 64-77.)

The term "fixed-weight index" can also have a different meaning. Index number formulas, by their very nature, refer to only two periods. When constructing a time series for prices over a number of years some decisions have to be made on how to use the two-period index number formulas for multi-year comparisons. One method is to use the same set of weights for all the periods in the time series. Another is to calculate a fixed-weight index number formula for each

pair of periods in the time series and combine them in some manner. In the time series sense, a "fixed-weight index" is sometimes said to be one that adopts the strategy of holding weights fixed over the whole series, rather than changing (or "shifting") the weights for each pair of periods in the series.

Obviously, when the term "fixed-weight index" can mean two very different things, the potential for confusion exists. The CPI and the PCE-1972 weights index are fixed-weight indexes in both senses noted above. The other PCE indexes (the PCE Deflator and the chain PCE price index) use fixed-weight index number formulas, but they are not fixed in the time-series sense.

<sup>10</sup> As noted earlier, the weights, though taken for nearly the same time period, are not exactly the same because consumption as measured in the National Accounts (weights for the PCE) was not exactly the same as measured in the Consumer Expenditure Survey. In addition, until January 1978, the CPI was computed on the "old" weights drawn from 1960-61, so this factor contributes something to the difference, though probably a small amount. The difference also incorporates the net effect of the exclusion of some CPI series from, and the inclusion of non-CPI price data in, the PCE and a host of other factors in which the two indexes differ.

<sup>11</sup> The following table shows the effect of the 1980 revisions on the comparison of the PCE 1972-weight index and the CPI-XI for 1975 through 1980:

	Annual percent change					
	1975	1976	1977	1978	1979	1980
CPI-XI . . . . .	8.3	5.7	6.4	6.8	9.6	11.2
PCE-1972 (before revision) . . . . .	8.2	5.1	5.9	7.1	9.4	10.9
PCE-1972 (after revision) . . . . .	7.8	5.3	6.3	7.2	9.6	11.0

<sup>12</sup> The current CPI weights come from the 1972-73 Consumer Expenditure survey and no comparable expenditure data for a later period exist. The new Continuous Consumer Expenditure program of the Bureau of Labor Statistics may permit CPI reweighting exercises to be carried out in the future. See Eva Jacobs, "Family expenditure data to be available on a continuing basis," *Monthly Labor Review*, April 1979, pp. 53-54.

<sup>13</sup> For example, if rents begin to rise more rapidly than components of the housing index in CPI-U (house prices, mortgage interest costs, taxes, insurance, and repairs), it is possible for the CPI-XI index to be the faster-rising index. For additional discussion, see Gillingham, *op. cit.*

<sup>14</sup> As we have already noted several times, one cannot give this interpretation to comparisons involving changes in the PCE 1972-weight and PCE current-weight indexes. See the Appendix.

## APPENDIX: Interpreting changes in index numbers

This Appendix provides the technical demonstration supporting the text's statement that annual or quarterly changes in Paasche-formula price indexes cannot be interpreted as measures of price change between adjacent periods. First, we show that it is legitimate to use changes in Laspeyres indexes as inflation measures.

### Changes in Laspeyres-formula index numbers

The Laspeyres price index formula is:

$$(1) \quad L_{ot} = \frac{\sum_i p_{it} q_{bi}}{\sum_i p_{oi} q_{bi}} = \sum_i \left[ \frac{p_{it}}{p_{oi}} \right] \left[ \frac{p_{oi} q_{bi}}{\sum_i p_{oi} q_{bi}} \right] = \sum_i \left[ \frac{p_{it}}{p_{oi}} \right] w_i$$

In the formula, "L" stands for the Laspeyres index. Period 0 is often referred to as the "reference" period, *t* is the current or "comparison" period, and *b* is the period from which the weights were taken (often taken to be identical with the reference period in the pure Laspeyres formulation, but in practice usually some other period); *p* and *q* are consumer prices and consumption quantities in the appropriate periods, and the subscript "i" designates the range of commodities included in the index. For simplicity in notation, the subscript "i" will be dropped in the rest of this appendix wherever the context makes it possible to do so.

Equation (1) has been written in three alternative formulations. The middle form of equation (1) is sometimes referred to as the "computational form," for it expresses the price index in terms of changes in each of the prices ( $p_t/p_o$ )—often called a "price relative"—weighted by the share of each commodity in total expenditures in the base period (the second bracketed term). On the far right-hand side, the computational

form of the Laspeyres index is rewritten, with the bracketed expression for the expenditures share designated simply as " $w_i$ ."

Textbook presentations on index numbers usually deal with only two periods, but because present purposes call for constructing a time series, we must consider at least three periods. For convenience, let us take the reference and weighting periods to be 1972 (that is, periods 0 and *b* are both 1972), and consider indexes which use 1979 and 1980 as comparison periods. Then we have two Laspeyres indexes:

$$(2a) \quad L_{79} = \sum p_{79} q_{72} / \sum p_{72} q_{72}$$

$$(2b) \quad L_{80} = \sum p_{80} q_{72} / \sum p_{72} q_{72}$$

We want to show that the ratio of these two indexes, from which the percentage change in the Laspeyres index can be determined, is itself a price index.

The change in the Laspeyres index can be determined from the ratio of (2b) to (2a), which is:

$$(3) \quad \Delta L = \frac{L_{80}}{L_{79}} = \frac{\sum p_{80} q_{72}}{\sum p_{72} q_{72}} \div \frac{\sum p_{79} q_{72}}{\sum p_{72} q_{72}} = \frac{\sum p_{80} q_{72}}{\sum p_{79} q_{72}}$$

Equation (3) is a Laspeyres index, though one where the period used for deriving the weights is neither the reference nor the comparison period providing the prices—that is, referring to equation (1),  $b=1972$ ,  $0=1979$ ,  $t=1980$ . This Laspeyres index shows the change in cost, between 1979 and 1980, of a basket of goods and services typifying average 1972 consumption levels.

Thus, the ratio of two Laspeyres price indexes with common weights is itself a Laspeyres price index. This is a very useful property, and accounts in part for the widespread use of the Laspeyres formula: many purposes require a price index formula that can be used to

compute inflation rates for a variety of periods, and the Laspeyres index fills this need. Indeed, using the change in a Laspeyres formula price index as a price measure has become so commonplace that some economists have apparently overlooked the fact that the Paasche index, as normally computed, lacks the Laspeyres index's ability to account for inflation rates for various periods.

### Interpreting Paasche-formula index numbers

The formula for the Paasche price index (which we denote by "R") is:

$$(4) \quad R_{ot} = \frac{\sum p_t q_t}{\sum p_o q_t}$$

All the symbols have the same interpretation as in equation (1), and, as already noted, we have dropped the commodity subscript "i" because interpretation is unambiguous without it.

As before, we consider three time periods, and Paasche price indexes for two periods:

$$(5a) \quad R_{79} = \frac{\sum p_{79} q_{79}}{\sum p_{72} q_{79}}$$

$$(5b) \quad R_{80} = \frac{\sum p_{80} q_{80}}{\sum p_{72} q_{80}}$$

The ratio of these two indexes gives the change, which is, algebraically:

$$(6) \quad \Delta R = \frac{R_{80}}{R_{79}} = \frac{\sum p_{80} q_{80}}{\sum p_{72} q_{80}} \div \frac{\sum p_{79} q_{79}}{\sum p_{72} q_{79}}$$

Unlike the Laspeyres case (equation 3) equation (6) does not reduce to any index number formula, because the two Paasche index numbers (1979 and 1980) have *different* weights. The change in any index number (such as the Implicit PCE Deflator) which is calculated using the Paasche formula remains the ratio of two Paasche price indexes with different weights; it can be given no standard interpretation from the theory of index numbers.

However, Richard J. McDonald, of the BLS Office of Research and Evaluation, has pointed out a relation between equation (6) and the PCE "chain-weight" price index formula, discussed in the text. Each link in the "chain-weight" index uses the Laspeyres price index formula. In the case illustrated (1979-80 annual data), the Laspeyres chain-weight index (LC) is:

$$(7) \quad LC_{79-80} = \sum p_{80} q_{79} / \sum p_{79} q_{79}$$

The LC index has an unambiguous interpretation as a price measure: it is the change in cost (between 1979 and 1980) of 1979's consumption level.

The equation for the LC index can be rearranged, giving:

$$(7a) \quad \sum p_{79} q_{79} = \sum p_{80} q_{79} / LC_{79-80}$$

When this is substituted for the numerator of the term on the right-hand side of equation (6), we have:

$$(8) \quad \Delta R = \frac{\sum p_{80} q_{80}}{\sum p_{72} q_{80}} \div \frac{\sum p_{80} q_{79} / LC_{79-80}}{P_{72} q_{79}}$$

Equation (8), in turn, can be rearranged (intermediate steps are available on request) with the final result being:

$$(8a) \quad \Delta R = \left[ \frac{\sum p_{80} q_{80}}{\sum p_{80} q_{79}} \div \frac{\sum p_{72} q_{80}}{\sum p_{72} q_{79}} \right] \times LC_{79-80}$$

This shows that the period-to-period change in the Paasche price index (R) is equal to the Laspeyres-chain-weight index (LC) multiplied by the ratio of two *quantity* indexes (the terms in the bracket in equation (8a)). Each of these quantity indexes gives the change in consumption quantities between 1979 and 1980, but they use different prices as weights (1980 in the numerator, 1972 in the denominator).

Equation (8a) shows that the change in the Paasche price index can be greater or less than the price measure of the chain-weighted index, depending on whether the 1979-80 consumption quantity change is greater or lesser when evaluated in 1972's prices or in 1980's prices. This is, indeed, a complex relation which is not easy to analyze and has been the subject of considerable confusion. Consumption quantities may change between 1979 and 1980 for a number of reasons: (1) changing living standards (for example, reductions in consumption levels that accompany declines in real income during recessions), (2) changing consumer tastes, household formation, or other factors that may alter aggregate consumption levels, (3) shifts in consumption patterns because of consumer response to relative price changes (the substitution of fried chicken for hamburgers, for example, when the price of beef rises more rapidly than the price of poultry), and (4) all other changes in the economy that affect the consumption sector. But equation (8a) shows that it is not *just* the 1979-80 consumption quantity changes that affect the 1979-80 change in the Paasche price measure: the 1979-80 change in the Paasche price index is also influenced by price change over the whole interval back to 1972.

### Quantity ratio effect in Paasche index changes

In the following, we refer to the bracketed term in equation (8a) as the "quantity ratio term" present in calculated changes in Paasche-formula price indexes ( $\Delta R$ ). One frequently sees  $\Delta R$  used as if it were a period-to-period inflation measure, and nearly as frequently analysts have mistakenly compared  $\Delta R$  with the change in the PCE 1972-weight index in order to estimate the effect of different weighting patterns on the price measurement. Such a comparison mixes the effect of the quantity ratio term with the weighting effect, properly estimated, and can be very misleading, as the following table shows:

Period	PCE: 1972 weight	PCE: current weight	Difference (False weighting effect)	True weighting effect
1979 . . .	9.6	8.2	1.4	0.3
I . . .	10.3	10.0	0.3	0.5
II . . .	9.2	8.0	1.2	0.4
III . . .	10.4	9.4	1.0	0.5
IV . . .	11.4	10.7	0.7	0.5
1980 . . .	11.0	10.2	0.8	0.4
I . . .	13.2	12.0	1.2	0.7
II . . .	9.9	9.8	0.1	0.2
III . . .	9.5	8.8	0.7	0.0
IV . . .	10.1	9.7	0.4	0.0

(All numbers are seasonally adjusted annual rates and the "true weighting effect" is taken from line 9 of table 2 in the main text.) In 1979 and 1980, the quantity ratio term in R was unusually large, leading many analysts<sup>1</sup> mistakenly to conclude that weighting effects were creating a far larger effect on the price measures than was in fact the case.

### Substitution and fixed-weight price indexes

What economic interpretation should be put on the quantity ratio or "shifting weights" term? The "substitution" factor—shifts in consumption in response to relative price changes in goods and services—has a special role in price index theory. Because of this, some economists have apparently assumed that "shifting weights" in the Implicit PCE Deflator are composed entirely or primarily of substitution effects. Equation (8a) shows there is no basis for this belief, but the misperception is so widespread that it is well to say a few words on the matter.

It is well known from price index theory<sup>2</sup> that fixed-weight price index formulas (including both Laspeyres and Paasche indexes) contain a bias because they do not allow for consumer substitution in response to changes in relative prices. If a price index can be constructed which will adjust for consumer substitution while still holding the standard of living constant, it would be a better measure of inflation than fixed-weight alternatives, such as Laspeyres, Paasche, or Laspeyres-Chain indexes, all of which use fixed-weight formulas. The reason is the former would correct for substitution, whereas the three fixed-weight indexes do not. That is a tall order, of course, for the index that corrects for substitution would have to distinguish a reduction in (say) energy usage that was associated with reduced living standards from one that represented only substitution in response to relative price changes, with living standards constant.

Price index theory has devised alternative forms for indexes that do take account of substitution in consumption. One of the first of these was developed by

Nobel prize winner Lawrence R. Klein in a famous article published in 1948.<sup>3</sup>

Empirical comparisons of fixed-weight Laspeyres or Paasche price indexes with indexes that do allow for consumer substitution (usually referred to as "true cost-of-living indexes") have invariably shown that the "substitution" bias in the fixed-weight index is extremely small.<sup>4</sup> Studies by a number of researchers all agree in producing estimates of the substitution bias on the order of one-tenth of an index point (0.1) per year or less. (See the author's summary of these studies published in 1976.)<sup>5</sup>

Moreover, when the effect of weighting differences on index measurement is estimated (as in the body of this paper), the results suggest that the econometric estimates produced for earlier periods are still approximately valid for more recent years, even though no estimates of cost of living indexes have been produced for years subsequent to 1973. In the main text of this article, we estimated the effect of shifting weights from 1972 to 1979 at roughly 0.4 percentage points difference in the index during a year of double-digit inflation (1980). That gross weighting effect is clearly a major overestimate of the substitution effect. The gross weighting effect contains two different substitution effects, which relate to two different formulations of the cost-of-living index, *in addition to* the difference between those two cost-of-living indexes.<sup>6</sup> An educated guess would put the substitution bias in (say) the Laspeyres formula index at no more than 0.2 points of that 0.4 point total—and 0.2 percentage points in a year of double-digit inflation is, in relative terms, close to the 0.1-index point estimates contained in earlier studies for the United States.

THUS, BOTH PRICE index theory and empirical estimates indicate that the change in a Paasche-formula price index incorporates an undesirable measure of quantity change along with the price change measure. The difference between an index such as the PCE "chain index" and the Implicit PCE Deflator itself is often referred to as the "effect of shifting weights"<sup>7</sup> This "shifting weight" term is therefore interpreted as a factor to be removed from the change in the deflator to obtain a valid price measure (which, in this case, is the PCE chain index measure), and not as some sort of correction for the substitution bias that price index number theory predicts for fixed-weight index numbers.

To obtain a measure of aggregate period-to-period price change using the PCE price data system, the user would be well advised to use either the "fixed-weight" or the "chain-weighted" PCE price indexes (those designated in the text as "PCE 1972-weights" and "PCE chain-weights"), rather than to compute the change in the Implicit PCE Deflator. It should be emphasized, however, that the Paasche price index formula employed for the



Implicit PCE Deflator does provide a valid current-weighted price measure for the whole interval from 1972 to the date of computation, and nothing in this ar-

ticle suggests that there are any interpretive difficulties in employing the Paasche price index formula for this use. □

— FOOTNOTES —

<sup>1</sup> See Blinder, *op. cit.* (particularly at p. 545), as well as numerous articles in the press.

<sup>2</sup> See Robert A. Pollak, "The Theory of the Cost of Living Index," BLS Working Paper 11, 1971.

<sup>3</sup> Lawrence R. Klein and H. Rubin, "A Constant-Utility Index of the Cost of Living," *Review of Economic Studies*, Vol. 15, 1947-48, pp. 84-87.

<sup>4</sup> See Arthur S. Goldberger and Theodore Gamaletsos, "A Cross-Country Comparison of Consumer Expenditure Patterns," *European Economic Review* 1, 1970, pp. 357-400; Laurits R. Christensen and Marilyn E. Manser, "Cost of Living Indexes and Price Indexes for U.S. Meat and Produce, 1947-71," in Nestor E. Terleckyj, ed., *Household Production and Consumption*, Studies in Income and Wealth, Vol.

40, National Bureau of Economic Research, 1975; Marilyn E. Manser, "A Note on Cost of Living Indexes and Price Indexes for U.S. Food Consumption, 1948-1973," BLS Working Paper 57, January 1976; and Steven D. Braithwait, "The Substitution Bias of the Laspeyres Price Index: An Analysis Using Estimated Cost-of-Living Indexes," *American Economic Review*, March 1980, pp. 64-77.

<sup>5</sup> Jack E. Triplett, "The Measurement of Inflation: A Survey of Research on the Accuracy of Price Indexes," in Paul H. Earl, ed., *Analysis of Inflation* (Lexington, Mass., Lexington Books, 1975), pp. 19-82.

<sup>6</sup> See Jack E. Triplett, "Comment," *Brookings Papers on Economic Activity* 2, 1980, pp. 567-72.

<sup>7</sup> See the *Survey of Current Business*, March 1981.

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### Cost-of-living escalation

During the past decade of increasing concern about inflation, the influence on wages that has drawn most attention is consumer prices. "Indexing," or cost-of-living escalation, is an important and growing phenomenon. . . . The striking fact is how small—rather than how large—a role the cost of living plays as a wage determinant in the United States. Cost-of-living escalators are essentially absent in the nonunion sector and in nearly half of union contracts, and rarely, if ever, offer increases that are fully proportionate to rises in the Consumer Price Index. Of course, indirectly and informally, consumer prices have somewhat greater effect, partly through the emulation of wages that are escalated. Still, econometric findings on aggregate wage behavior accord a less important role to consumer prices than to past wages or product prices. I believe that this limited role of consumer prices is understandable (and . . . that it is socially desirable).

It is axiomatic that rational workers care, not about the number of dollars in their pay envelopes, but about the bundle of goods and services that it enables them to buy. Clearly, the risk-averse worker will prefer certainty about real wages to a certain path of nominal wages whose real worth has the same expected value but is subject to uncertainty. But the fact that workers care about the predictability of real wages is not sufficient to make the cost of living a major wage influence or a tractable wage norm. That will be the case only if their quit rates are raised by increases in consumer prices for a given distribution of nominal wages in the labor market; or if their concern about the cost of living enables the employer to sell them "real wage insurance" profitably. Consumer prices must be linked to wages by either quit-rate sensitivity or efficient insurance contracts.

—Arthur M. Okun,  
*Prices and Quantities: A Macroeconomic  
Analysis* (Washington, The Brookings  
Institution, 1981), pp. 99-100.

# Defining the rate of underlying inflation

*Overall measures of price increase reflect both a core rate of inflation residing in the economy and the short-run effects of uncontrollable external shocks; many statistics have been developed to net out the shock component, but none has won universal acceptance*

DAVID W. CALLAHAN

Few political, economic, or social problems arouse greater emotional intensity today than inflation. It affects everyone, either adversely or positively. Inflation redistributes income and wealth, reallocates resources, and adds uncertainty to all long-range financial planning.

The magnitude of the impact will obviously depend on the level of the inflation. From 1960 through 1973, the United States experienced an average annual rate of inflation of 3.3 percent as measured by the Consumer Price Index (CPI). During 1974–80, price increases accelerated to an annual rate of 9.3 percent (10.1 percent if you exclude 1976). The prospect of recurrent double-digit inflation has given price stability high national priority.

Efforts to identify and define inflation have produced a new economic term—the “underlying” (or core, or base, or residual) rate of inflation—which appears in newspapers, in economic literature, in testimony before Congress, and in presidential speeches. That term, and the concept it represents, are the focus of this article.

I will not attempt to define the “true” underlying rate of inflation. My intent is simply to eliminate some confusion as to the meaning of the phrase.

The widespread usage of the term underlying rate of inflation would imply a consensus of understanding. It is cited so often without any explanation that we dare

not ask what it means for fear of showing our ignorance. In truth, the presumption that the meaning of underlying rate of inflation has become common knowledge is only half correct.

There are two components to the definition—the concept, and the measurement thereof. There appears to be fairly strong agreement as to the concept, inasmuch as the term is somewhat self-explanatory. Theoretically, the underlying rate of inflation is the long-run trend of price levels inherent in the existing economic structure. How do we measure this concept? We now go from the world of conceptual unanimity to widespread disagreement on the appropriate measurement of the rate. There is almost a one-to-one correspondence between the number of economists who have addressed this topic and the number of different measures proposed.

## Some suggested barometers

There are basically two schools of thought on the measurement of the long-run trend of price levels. Some define it as the amount of inflation that would be observed if we could eliminate the effects of all short-run exogenous (or uncontrollable) “shocks,” such as OPEC price increases or severe weather conditions. Others equate it to the long-run trend in the costs of the factors of production. Depending on the definition of “shocks,” these two approaches could ultimately converge to the same estimate, despite methodological differences.

Most of the proposed measures of the underlying rate

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of inflation using the inflation-excluding-shocks approach are in terms of a modified CPI: All Items less food; All Items less food and energy; All Items less food, energy, (home) financing, taxes, and insurance; All Items less food, energy, financing, taxes, and insurance, and used cars. Some suggested measures have tended toward the CPI: All Items less everything for which prices are going up faster than the average! Other analysts suggest that different government statistics would be more appropriate barometers. Alternatives include the Producer Price Index (PPI) for finished consumer goods less food and energy; the nonfarm gross domestic product deflator; personal consumption expenditures less food and energy; unit labor costs; and myriad variations of these measures.

The common element among all of these is the exclusion from some existing comprehensive measure of inflation of all of the items whose prices are considered to be uncontrollable in the short run in the normal context of the free market mechanism—or, to put it another way, those items for which the price is not simply a function of production decisions for a given level of demand, costs of production, and profit margins. The uncontrollable (or shock) aspect usually arises on the supply side. Food supplies depend on the weather. OPEC sets oil supply levels and prices. (Again, we are talking about the short run; the United States still imports approximately one-third of domestic consumption, and almost all domestically produced oil now goes at world prices.) The money supply is “determined” by the Federal Reserve Board, affecting mortgage interest rates and other costs of borrowing. And, to cite one more example, the available stock of used cars and houses depends on decisions made by current owners.

Deciding which components to exclude obviously entails some subjective analysis. This is why so many permutations of the same measure have appeared over the last decade. Also, the number of shock items to be excluded is not static. Long-run adjustments resulting from changes in technology or consumption patterns could eliminate or diminish the price level impact of possible supply interruptions. It is conceivable that, someday in the (probably rather distant) future, alternative energy sources and weather control would allow the deletion of food and energy from the list of shock items; these two components are almost universally excluded from contemporary measures of the underlying rate of inflation.

On the other hand, the approach that defines the rate as the trend in the costs of production “builds up” an estimate using specific micro data weighted together. Probably the most widely publicized measure of this type was developed by Dr. Otto Eckstein of Data Resources, Inc., and was presented to the Joint Economic Committee in early 1980.<sup>1</sup> The Data Resources defini-

tion of “core” inflation, which I will use as an example of the production costs approach, is based on the combined estimates of unit labor cost trend (with a weight of 0.65) and capital cost trend (with a weight of 0.35). While there are many underlying factors and relationships implicit in the model, the labor cost component is essentially a function of the unemployment rate, price expectations, and productivity. Capital costs depend on the prime interest rate, current high-grade corporate bond rates, and price expectations.

### Why the measures differ

What are the differences, if any, among these measures of the underlying rate of inflation? Within the group of estimates using the inflation-less-shocks approach, variations occur because of differences in the overall measure of inflation selected and in the items defined as shocks. These same factors will also cause the differences between cost-of-production and inflation-less-shocks estimates, but it is much more difficult to associate the source of the variance with a specific factor.

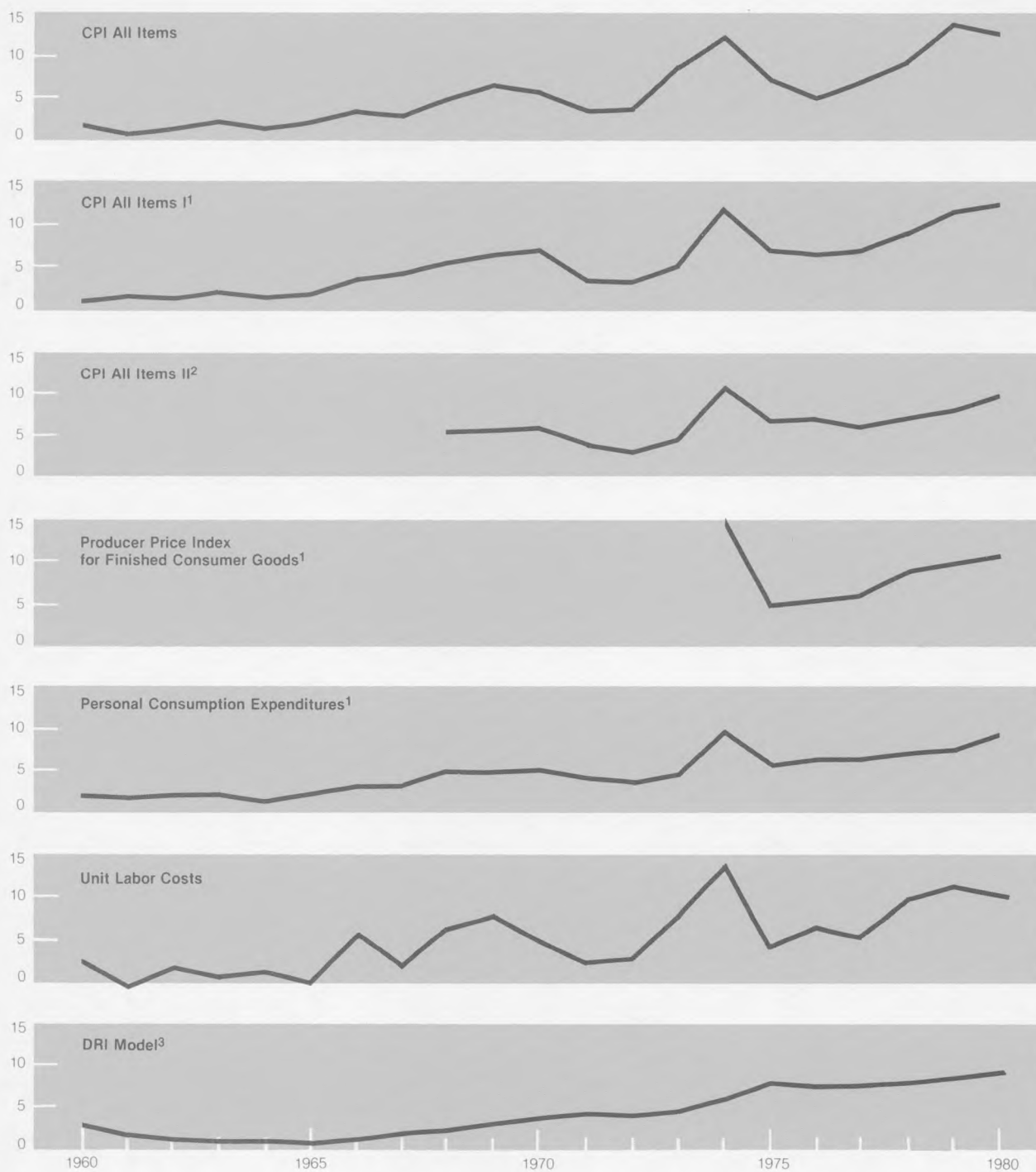
However, as I mentioned earlier, the costs-of-production approach could, theoretically, be equivalent to the inflation-less-shocks approach in the short run if the following conditions existed: (1) the list of shocks were perfectly defined; (2) demand levels and profit margins were exogenously fixed; and, (3) all adjustments were instantaneous (or at least consistent between models) so that no time lag discrepancies arose. The first assumption of perfect knowledge would exclude every item with an “external” supply constraint from the selected overall measure of inflation. The second condition assumes that the costs of production are the only determinants of price, and the third prerequisite for equality between approaches simply assumes away temporal differences inherent in the two methodologies. Of course, there is an additional assumption that the measures of overall inflation and the costs of production are also perfect.

That’s the theory; what about the reality? Table 1 presents six of the more widely accepted measures of the underlying rate of inflation. These annual percentage increases are contrasted graphically with the most frequently used measure of overall inflation—the CPI—in chart 1.

As the chart shows, there are significant differences at any time among some or all of the estimates of the underlying rate of inflation, and between these measures and the CPI. This is understandable in the context of the earlier discussion of technical variation among the models. However, there is very little statistical difference in the long-run trend line among the measures, including the CPI.<sup>2</sup> This can largely be attributed to the one homogeneous characteristic: Today’s shock inflation

**Chart 1. Some alternative measures of the underlying inflation rate compared with the CPI, 1960-80**

Percent



<sup>1</sup>Excludes food and energy.

<sup>2</sup>Excludes financing, taxes, and insurance; home purchase; food, energy, and used cars.

<sup>3</sup>Data Resources, Inc. model.

Note: A more complete description of each of the above measures may be found in the footnotes to table 1.

**Table 1. Annual percent change in alternative measures of the underlying rate of inflation and in the CPI, 1960-80**

Year	CPI All Items	CPI All Items I <sup>1</sup>	CPI All Items II <sup>2</sup>	Producer Price Index for finished consumer goods <sup>1</sup>	Personal consumption expenditures <sup>2</sup>	Unit labor costs <sup>4</sup>	DRI model <sup>5</sup>
1960	1.5	0.8	.....	.....	1.6	2.2	2.8
1961	0.7	1.5	.....	.....	1.3	-1.0	1.7
1962	1.2	1.1	.....	.....	1.6	1.1	1.0
1963	1.6	1.8	.....	.....	1.8	0.3	0.8
1964	1.2	1.2	.....	.....	1.1	1.0	.7
1965	1.9	1.5	.....	.....	1.8	-2	.5
1966	3.4	3.3	.....	.....	2.8	5.7	.9
1967	3.0	3.9	.....	.....	3.1	1.7	1.4
1968	4.7	5.1	5.0	.....	4.6	6.0	1.7
1969	6.1	6.1	5.1	.....	4.5	7.8	2.7
1970	5.5	6.6	5.6	.....	4.7	5.0	3.8
1971	3.4	3.1	3.7	.....	4.0	2.0	4.0
1972	3.4	3.0	2.7	.....	3.2	2.7	3.9
1973	8.8	4.7	4.2	.....	4.3	7.6	4.2
1974	12.2	11.3	10.7	14.9	9.5	13.7	5.7
1975	7.0	6.7	6.2	4.9	5.6	4.0	7.5
1976	4.8	6.1	6.4	5.1	6.0	6.3	7.4
1977	6.8	6.4	5.9	5.7	6.0	5.1	7.4
1978	9.0	8.5	6.5	8.5	6.8	9.5	7.8
1979	13.3	11.3	7.8	9.7	7.1	10.9	8.1
1980	12.4	12.1	9.4	10.4	9.1	10.3	8.9

<sup>1</sup> Excludes food and energy. Covers the period December to December.

<sup>2</sup> Excludes financing, taxes, and insurance; home purchase; food; energy; and used cars. Covers the period December to December.

<sup>3</sup> Excludes food and energy. Covers the fourth quarter to fourth quarter period.

<sup>4</sup> Data are for the private business sector, on an all-persons basis. Covers the fourth quarter to fourth quarter period.

<sup>5</sup> Data are from the Data Resources, Inc. model, and represent the weighted combination of estimated trends in unit labor costs and capital costs.

Note: Dash indicates data not available.

becomes a part of tomorrow's underlying rate of inflation because of the almost total interdependence and circularity of our economic system. Current shock inflation will impact future price levels both directly and indirectly. The direct effects occur through an increase in the costs of production for all industries that use one of the shock factors as an input.

The indirect effects result largely from the influence of "price expectations." Labor unions negotiate for wage increases commensurate with the overall inflation measured during the previous period(s), regardless of the role of shocks. Nonunion wages are closely tied to those of union workers. Depending on the competitive position of the specific industry or company, businesses have tended to grant wage demands when confident

that all or most of the costs can be passed to the customer through increased prices. And, long-term interest rates are also extremely sensitive to inflationary trends. These factors help to trigger a succession of reactions and adjustments rippling through the economy which will affect all measures of the underlying rate of inflation in future periods.

EACH OF THE ESTIMATES presented in table 1 has been referred to as "the" underlying rate of inflation at one time or another by such groups as the Cost of Living Council, the Council of Economic Advisers, the Council on Wage and Price Stability, analysts preparing the *Economic Report of the President*, and various other policymakers. Which of these measures, if any, should be used in the determination of U.S. economic planning goals? In the short run, a measure that segregates the level of inflation inherent in the economic structure from the overall inflation rate can be a very valuable tool. It can be particularly useful when predicting the degree of inflation for the next period, allowing us to adjust our economic policies accordingly.

The choice of an appropriate short-run measure of the underlying rate will be determined by the needs and some subjective decisions of the individual user. However, the choice of a measure becomes moot in the long run. All shocks are absorbed, all adjustments have been made, and the underlying rate of inflation coincides with the long-term trend in the measure of overall inflation. □

— FOOTNOTES —

ACKNOWLEDGMENT: The author thanks John Wetmore, Jesse Thomas, Craig Howell, and Andrew Clem of the Office of Prices and Living Conditions, Bureau of Labor Statistics, for their assistance in the preparation of this article.

<sup>1</sup> *Tax Policy and Core Inflation: A Study Prepared for the Use of the Joint Economic Committee, Congress of the United States*, Apr. 10, 1980, 96th Cong., 2d sess.

<sup>2</sup> All of the long-run trend lines for the time series listed in table 1 are positively sloped except the Producer Price Index for finished consumer goods less food and energy. This is because PPI data for this particular series do not begin until 1974, which happens to be the year of the maximum observed value for the series. If the prior periods' observations were below the 1974 level (which is the case for all of the other series), the acceleration in 1974 would also result in a positively sloped trend line.

# Some proposals to improve the Consumer Price Index

*Two students of price measurement examine limitations of the CPI, urge changes in the way homeownership is measured, suggest experimental averaging of current- and base-weighted indexes*

PHILLIP CAGAN AND GEOFFREY H. MOORE

The Consumer Price Index is a good index for its intended purpose—a measure of average price changes in the goods and services that consumers purchase. Some of the complaints made—that the CPI does not reflect the price changes for this or that group properly—are a misinterpretation of the purpose of the CPI and would not provide desirable guidelines for revising the index. Nor would any of the other available price indexes serve as well the purpose stated above for which the CPI is designed. While the CPI has serious limitations as a cost-of-living index for escalation purposes to hold standards of living constant, we know of no practical remedies for many of the most serious limitations. In view of the wide-ranging public functions served by the CPI, nothing is to be gained by indiscriminate criticism of it that could undermine the public's confidence in its acceptability. We believe that a constructive approach is to focus on feasible improvements.

Over the years, the CPI has been improved, and there is room to improve it further. Our review of problems

with the CPI leads us to the following recommendations concerning the weights of the index, its housing component, and how to deal with its limitations as an escalator.

## **The changing market basket**

The CPI pertains to a fixed basket of goods and services, which does not allow for substitution in consumption as a result of changes in relative prices. An index measuring the cost of a constant standard of living, on the other hand, would allow for substitutions that consumers make from higher to lower priced goods, provided that their standard of living is not changed thereby. In the escalation of pension payments, for example, a major objective is to maintain the standard of living of the pensioners. Since the CPI does not allow for substitutions of lower priced items that maintain the same standard, to that extent it overstates the escalation needed.

To allow for substitutions that provide the same standard of living as the original market basket is not, however, a simple matter. Critics of the CPI frequently overlook the point that simply substituting an item that has become cheaper for one that has become more expensive, say a pound of chicken for a pound of beef, will not ordinarily hold the standard constant. The substitutions must be equivalent in utility as judged by the consumer, and this usually means substituting a larger

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quantity of the cheaper item for a smaller quantity of something else. Estimating what these equivalent quantities are is the problem. The practical difficulties of doing so, in view of the differences in tastes among consumers, make the simplicity of a fixed basket attractive.

While past studies indicate that the upward bias of the fixed market basket has been quite small, it should be monitored, nonetheless. In 1978, the Bureau of Labor Statistics instituted a quarterly survey of consumer expenditures which, though less comprehensive than the major surveys made every dozen years or so, can provide the basis for more frequent revisions of weights. In addition, this makes it possible to construct an index weighted by current expenditures and to extend it back in time for comparison with the present base-weighted index. This would show how much difference frequent updating of the weights would make.

We believe that it would be worthwhile to experiment with, and perhaps eventually to adopt, an average of a base-weighted and current-weighted index as the official index for escalation purposes. Such a combined index would avoid some of the upward bias of the present base-weighted index and some of the downward bias of a current-weighted index. Even if these biases are small over short periods, they may add up, over a period of many years, to an amount that is significant for escalating contracts or social security benefits. The combined index could be expected to approximate more closely than would either one separately an index representing the cost of a constant standard of living.

### The homeownership factor

Housing presents special problems, some of a controversial nature. Some of the controversy is based on misinformation. A common but erroneous view is that the CPI assumes that every homeowner purchases his home every month at the going price and pays the going mortgage interest rate. The BLS should do everything possible to correct these impressions by explaining, in easily understood terms and in prominent places, exactly how the housing component is calculated.

The homeownership part of the housing component comprises the cost of houses, mortgage interest, insurance, taxes, and repairs. Each of these parts is priced and incorporated into the index according to its weight in the Consumer Expenditure Survey period, 1972–1973. Insurance, taxes, and repairs are recurring expenses and provide no special problems. It is the treatment of house purchases and mortgage interest payments that has attracted attention. The index uses *current* house prices and *current* mortgage interest rates. They receive a weight in the index according to the amount of expenditure made or contracted for by the

households surveyed in 1972–73. If a household bought a house in that period, the total purchase price was counted as a current expenditure in the survey, while the current sales of houses by the same or other households were subtracted. The interest cost of the mortgage financing over the first half of its life (since the average mortgage is terminated about halfway) was also counted as a current expenditure. The fact that the actual interest payment and amortization stretch over a period of years was ignored. For those households that did not purchase a house in the survey period, no house purchase or mortgage interest expenditure was recorded, whether these households then owned a home or not and whether they were making mortgage payments or not.

In the 1972–73 survey period, about 3 percent of households per year bought new houses. It is only the amount paid for houses and for mortgage interest by this 3 percent that determined the weights for these two items (after deducting house sales by households in the sample). The remaining 97 percent of households did not spend anything on the purchase of a house or take out a new mortgage. The rents paid by nonhomeowners are, of course, included as a separate item in the housing component. Many people find the zero house purchase and mortgage expenses for the 97 percent to be puzzling and are critical of it, but the explanation is simply that these households did not purchase houses or commit themselves to mortgages *in the survey period*. Their purchases or commitments were made before the survey period. In view of the large swings in the volume of purchases of new houses, the development of a current-weighted index is especially important for the housing component. Its existence would help to dispel much of the controversy about this part of the CPI by revealing what difference it would make if current patterns of expenditure were taken into account.

*Alternative measures.* The main controversial issue in the housing component is whether to stick with the present method, which treats the purchase of houses as a current consumer outlay, or to switch to a method which treats houses as an investment and includes only the current cost of their services. The main practical difference between these two is that the present method includes house prices with a weight based on the total value of house purchases in a 1-year period, whereas a cost-of-services method includes the capital cost of housing based on a rate of return to homeowners' equity. Both methods are the same in including other housing costs on a current expense basis, namely, mortgage financing, maintenance and repair, taxes, and insurance.

Each of the two methods has its advantages and disadvantages. The present outlays method is relatively

straightforward and has been the traditional practice for many years. However, it gives more weight to current house purchases than the cost-of-services method does. The latter, on the other hand, is more complex, requires estimates and assumptions regarding the appropriate rate of return to equity, and is harder to explain to the public. Some of the seeming arbitrariness in this method, as exemplified in the various experimental indexes the BLS now publishes, could be reduced by focusing on a single version which would reflect as far as possible the actual average capital cost to homeowners over the period since they purchased their current house. This involves a moving average of equity and financing costs over a period of years, weighted to reflect the actual experience of homeowners. Such a moving average of capital costs would be a smoother version of the experimental X-3 index now compiled by the BLS. Any index based on moving averages is not an up-to-date reflection of housing costs, however, and would be insensitive to the latest changes in house prices and interest rates. The present method has the advantage of reflecting current changes in house prices, but the other method is more representative of the trend rate of change of actual housing costs and, over a long period, would be more accurate for escalation purposes.

The equity costs in the cost-of-services method cannot be measured unambiguously, however, since there is no market transaction that supplies information on the capital cost of the equity to homeowners. Partly for this reason, most other countries largely ignore homeownership costs in their consumer price indexes. A rental equivalent measure of owner-occupied housing costs is the most attractive approach, if a sample of rental housing can be developed that is representative of owner-occupied housing. A rental index obviates the need to estimate housing costs for each of its components and in particular avoids the ambiguities of capital costs.

An alternative to the rental equivalent measure involves construction of an index of the costs of the services of owner-occupied housing—a user cost index. The proposal is to add up the current costs that the homeowner has to pay for housing services. These costs are equivalent to the rent that would be charged if someone were to provide these services in a competitive market (and if the renter cared for the house as though he owned it). The rent would have to cover not only the usual outlays for maintenance and repairs, taxes, and insurance, but in addition the cost of the capital funds tied up in the house. The latter can be viewed as the investment return on an asset, namely: (1) the alternative market rate of return on the homeowner's equity and the interest rate on the mortgage, and (2) the change in market price of the asset over the period (an addition to or subtraction from the return, which re-

flects the combination of physical depreciation due to aging and capital gain or loss due to market price developments).

The basic problem with user cost is that the alternative rate of return on homeowners' equity is ambiguous because it is not clear what the alternative is. Since such a rate cannot be defined and measured, it must be inferred. The BLS has proposed to approximate it by the rate of interest on new mortgages (probably the best proxy that could be chosen), but this clearly gives an inaccurate approximation for many years and produces anomalous results. When capital gains on homeowners' equity due to increases in house prices are deducted from the assumed alternative return on equity, housing costs fluctuate widely from year to year, and even an arbitrary smoothing still leaves large fluctuations that would appear mystifying and unreal to the average homeowner and the general public. To avoid the fluctuations, one of the BLS experimental series omits the capital cost of equity, but this destroys the rationale of the user cost approach.

We strongly recommend, therefore, that high priority be given to a study to determine whether a realistic rental equivalent method of measuring homeownership costs can be developed and implemented. At the same time, an experimental cost-of-services index along the lines outlined above could be published for a year or two so that users can become familiar with it. At the end of an experimental period, a decision would be made whether to adopt the rental equivalent or cost-of-services method, and whether to produce two indexes—one for escalation purposes using one of these methods, and another for indicating current price developments using the present treatment of house purchase prices. The rental equivalent index is the only one of these options that would be appropriate for both purposes. If the present treatment of house purchase prices is retained, we recommend that the weight of this item be reduced to allow for the purchases in the base period that increased the ownership of housing relative to the population of households.

*The mortgage rate dilemma.* In either the cost-of-services or the present method, mortgage financing costs can be based on the current rate for new mortgages or on a moving average of the rates contracted in the past that homeowners are currently paying. The present method treats mortgage interest as a commitment made at the time a house is bought and a new mortgage is obtained, with the "price" being the total amount of interest that will be paid by the average purchaser. We recommend the alternative, which corresponds better to what homeowners think of as their cost, namely the interest payments they are currently paying. This is based



upon a loan contract that is currently in effect, much like a rental contract, even though the rate may have been agreed upon years before. It is part of the cost of occupying the house and can be treated in the same manner as property taxes, insurance, maintenance, and repairs, some of which may also be contracted for in advance. The effect will be to reduce the fluctuations in the mortgage interest component, because the effective rate will be a weighted moving average of current and past rates, depending on the age distribution of outstanding mortgages. In addition, it would resolve a potentially troublesome problem with the present method, which will arise if the variable rate mortgage becomes popular. With this type of mortgage, the assumption that the current rate will apply for half the average term of the mortgage will no longer be tenable.

If a weighted moving average of mortgage interest rates were adopted for the CPI, subsequent changes in the index would be smaller than under the present treatment. If mortgage interest rates subsequently declined, the moving average would decline less rapidly, and indeed might rise for some time. If mortgage rates subsequently rose, the moving average would rise less rapidly. For example, during 1979, when interest rates rose rapidly, the use of the moving average (as in the BLS experimental index) would have reduced the rate of increase in the CPI (December to December) from 13.3 percent to 11.7 percent.

However, aside from the difference in the rates of change, such a revision creates a difference in the level of the index that is a problem for escalation purposes. Up to the time of the revision, the index would reflect the current level of the mortgage rate; thereafter, it would reflect the level of the moving average. Consequently, the index would continue to be affected by some of the same rates that had previously been reflected in the index. Under present circumstances, where there has been a substantial upward movement in mortgage interest rates during the past several years, the index would be higher than if the new method had been used exclusively throughout.

The best solution to this double counting of past mortgage rates, we believe, is to recalculate the index as it would be at the time of revision and measure the discrepancy from the present index at that time. This would include all the double counting that existed at the time of revision. This discrepancy could then be gradually eliminated, over a period of years, by an adjustment factor starting at the point of revision. For example, a discrepancy of, say, 2 percent at the time of revision could be eliminated by an adjustment factor of one-tenth of 1 percent per month. This adjustment could work in either direction depending on the direction of the discrepancy. If it were not actually incorpo-

rated in the official index, it might nevertheless be used in escalation contracts. We would recommend, however, that this method of adjustment be utilized in the index at the time of any revision for whatever reason. It would leave previously published index figures intact but correct gradually over a future period for any discrepancy the revision revealed. The end result would be a more accurate index.

*Data base modifications.* The FHA sample of prices and of new and existing houses as used in the CPI has various defects, including a downward bias (because purchasers of homes priced above the established loan maximum are not eligible for the program) and delays in recording the data. It should be supplemented with other data sources; such as regional data on multiple listings and house appraisals and the Census Bureau's quarterly index of new house prices based on a survey of builders. The data on multiple listings and house appraisals entail compilation costs, but the additional expense may be worthwhile.

Although the Census Bureau's index pertains only to newly built houses, it is not clear that the CPI sample need include any but new house prices. The prices of new and old houses may move closely together, in which case the distinction would not matter. In any event, the prices paid for old houses are presumably largely netted out in the CPI weights, since the purchases and sales of old houses are mainly transactions between households, which cancel out in the aggregate. For purposes of calculating capital gains or losses on homeowner equity in the cost-of-services method, however, a measure of price changes of existing houses would need to be continued.

And, finally, we recommend that, if feasible, consideration be given to the exclusion of land values from house prices in the present treatment of housing costs. Unlike houses, land can be viewed as a physically nondepreciable asset, and its purchase is thus closer to being an investment than a consumption expenditure. The present treatment overweights house purchases because of the omission of capital gains on homeowner equity, and any method for reducing the investment part of homeownership seems desirable to us, despite the inconsistency in ignoring the fact that houses are also partly an investment. If land values are excluded, it would be necessary also to exclude the taxes on land from the weights for property taxes and, in principle at least, to exclude them from measures of the current change in the level of property taxes. A proportionate adjustment of mortgage interest costs would be desirable as well, reflecting the fact that part of the mortgage principal is devoted to purchasing land.

In summary, our recommendations on the CPI treat-

ment of homeownership can be listed as follows:

- Construct a rental equivalent index of homeowner costs. If this proves to be feasible, the remaining recommendations would not apply.
- Use a moving average of mortgage interest rates that conforms to actual payments on outstanding mortgages.
- Improve the sample of house purchase prices, restrict it to new houses, and eliminate from the weights the purchases that increase the incidence of homeownership per household.
- Construct a cost-of-services approach to the housing component in which the capital cost of homeowner equity (including capital gains or losses) reflects the actual experience of the average household in purchasing and eventually selling a house.
- Exclude land from house purchase prices and make a corresponding adjustment in property taxes and mortgage interest costs.

Adoption of any of these recommendations does not necessarily call for adoption of the others. Since the development and testing of a rental equivalent index may take some time, we recommend that consideration be given to an interim revision based upon the other proposals.

### The CPI as an income escalator

The CPI is not an index of the cost of a constant standard of living, which its use in escalator agreements presumes to be the case. The index may overstate or understate the cost of a constant standard. One problem is simply inaccuracies in the data that we recommend be corrected, such as downward bias in the rent index due to aging of rental units and in the FHA house prices due to price limits. Another more general problem is bias due to quality changes in products, for which there is no easy solution other than continual alertness by the BLS staff to manifestations of the bias and care in handling the price data to remove such bias as far as possible. Additional efforts by manufacturers, consumers, and analysts to call to the attention of the BLS evidence of bias in their price data and ways of correcting for it would be desirable. Housing costs present a special set of problems, as discussed above.

The CPI also departs from the concept of a cost-of-living index by not explicitly holding constant the standard of living provided by consumer expenditures when substitutions are made among products as a result of changes in relative prices. The present fixed-weight index records larger price increases than consumers need to pay to maintain the same standard of living. From the available evidence this upward bias appears to be

small, but we recommend that it be monitored by the construction of a current-weighted index on a national basis, using weights derived from the new continuing survey of consumer expenditures. A combination of this current-weighted index with the present base-weighted index would help correct this bias if it proves to be serious.

A different set of problems in using the CPI as an escalator is posed by price changes that reflect changes in real national income per capita. These result from changes in the supply prices of resources or declines in productivity, adverse changes in the terms of foreign trade, and mandated increases in production costs due to environmental and safety regulations. The latter may, however, provide equivalent benefits to the public that are not included in real national income as conventionally measured. Finally, an increase in excise taxes will raise the CPI but not change real national income, even as conventionally measured.

These problems of using the CPI for escalation become more important in periods of high inflation. They cannot be handled by changes in the construction of the CPI without altering the purposes for which it was designed. Escalation requires, instead, that estimates be made of the implication of changes in real national income per capita (arising from such factors as resource depletion, higher pollution control costs, or declining productivity) and of changes in taxes, and that escalation agreements specify how these changes are to be handled.

In the use of cost-of-living estimates, escalation agreements should specify to what extent, if any, increases in real income per capita as well as any decreases are to affect the escalation. Escalation provisions in many wage contracts already implicitly allow for such increases and decreases by placing limits on the amount of escalation, while specified wage increases are provided to match expected advances in labor productivity. Moreover, contracts are renegotiated every few years, which permits adjustments to be made for unanticipated developments since the last contract.

Escalation provisions in pension plans, including social security benefits, present a more serious problem because full escalation is commonly provided, contracts are not usually renegotiated, and periodic adjustments are not made. Pension contracts could be rewritten and social security legislation amended to specify how the effects of the above income changes and tax changes are to be handled.

We recommend that the construction of estimates of such effects be studied and undertaken for escalation uses, but this is not a job particularly for the BLS, and we do not believe the matter should be treated in a price index.

We do not look with favor upon special CPI indexes for particular groups, such as retired persons living in Florida, welfare recipients in California, or Federal employees in New York City. Such indexes would be expensive to construct properly because of the need to collect prices from the outlets where the groups make their purchases, and there seems to be no limit to possible requests for such indexes. Special indexes seem largely unnecessary, so far as the use of different weights is concerned, because the evidence indicates

that indexes for different demographic groups would show relatively small differences compared with the large differences among individual households within as well as between these groups. It is also questionable whether special indexes are appropriate for escalation purposes, since their use implies that the particular expenditure pattern of the group should be compensated for regardless of what factors determine that pattern. We view the previous recommendations as more important uses for a limited BLS budget. □

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### The causes of continuing inflation

Efforts to respond over the last decade to the frustrating problem of inflation clearly demonstrate that today's dilemma is more complex than the traditional emphasis on excess aggregate demand might suggest. There are two separate aspects of the inflation problem. First, with hindsight, it is not difficult to identify factors that initiated past inflation, including both excess total demand and sudden changes in supply or demand conditions in major individual markets. But it is far more difficult to explain the second aspect—the stubborn persistence of inflation long after the initiating forces have been reversed or removed. It is the latter problem that has repeatedly defied policy remedies.

The worsening inflation of the 1970's has resulted primarily from the increased frequency and magnitude of the shocks and disruptions that have impacted on the economy. These events also have served to highlight the importance of accumulated structural changes in the economy. These structural changes, which have stretched over several decades, have reduced the ability of the economy to absorb these shocks in a noninflationary fashion. In combination, they have reduced gradually the sensitivity of inflation to short-run fluctuations in demand. In effect, competitive market restraints on some price and wage increases have become limited.

—*A Quarterly Report of the  
Council on Wage and Price Stability, No. 13  
(Washington, Executive Office of the President, 1978),  
p. 3.*

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# Working wives and mothers: what happens to family life?

*The changing work role of women has caused much concern about the survival of the family; most women can mix work with marriage and motherhood and handle or better share the resulting household responsibilities*

SAR A. LEVITAN AND RICHARD S. BELOUS

American families seem to be besieged from all sides. Divorce rates are climbing; marriage is being postponed, if not rejected; fertility rates are falling; increasing numbers of children are being raised only by their mothers, either because of divorce or because their parents were never married; and wives and mothers in record numbers are rushing out of the home into the labor market. What is the effect of these occurrences on the institution of the family? Does the "economic independence" of working women influence their decisions to either begin or end a marriage or to rear children? Too frequently, the changing work patterns of women are confused with causing the deterioration of family life. Careful analysis of family-related data show that although American families are changing, they are not eroding.

The fact that women are working in record numbers is not a new phenomenon. What has changed are the conditions and places in which they work. Many tasks which were once performed inside the home are now the source of jobs held by women outside the home. World War II stands as a major breaking point in fe-

male work patterns. The war effort's high demand for labor and patriotic fervor induced many women to join the labor force, boosting the size of the female work force by 57 percent during the war. Some analysts predicted that after the war family work patterns would return to the previous norm. They reasoned that rising productivity and economic growth would continue to boost the income earned by husbands, thus reducing the need for another check and inducing wives to return to their homes. This, of course, did not happen, as economists failed to consider the nonpecuniary attractions of work and the appetite for more income.

Since World War II, American households have shown a strong propensity to increase their consumption of goods and services. Many wives joined the work force to finance these upward consumption patterns. Like the mechanical rabbit leading the greyhounds around the racetrack, these aspirations have consistently stayed ahead of rising productivity, often requiring another paycheck in the chase for the "good life." With inflationary pressures and slow growth in productivity during the 1970's and early 1980's leading to sluggish gains and even occasional declines in real earnings, another check became necessary to maintain the standard of living, or growing consumption expectations, to which the families had become accustomed. By 1980, 3 of 5 families had at least two household members in the labor force—in most cases, the husband and the wife.

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## Work, marriage, and motherhood

Some futurologists have assumed that the vast upsurge of women in the work force may portend a rejection of marriage. Many women, according to this hypothesis, would rather work than marry. This "independence effect" would reduce the probability that women would marry as they are better able to support themselves. The converse of this concern is that the prospects of becoming a multi-paycheck household could encourage marriages. Data show that economic downturns tend to postpone marriage because the parties cannot afford to establish a family or are concerned about rainy days ahead. As the economy rebounds and prospects improve for employment, financial security, and advancement, the number of marriages also rises. In the past, only the earnings and financial prospects of the man counted in this part of the marriage decision. Now, however, the earnings ability of a woman can make her more attractive as a marriage partner—a modern version of the old-fashioned dowry.

Coincident with the increase in women working outside the home is the increase in divorce rates. Yet, it may be wrong to jump to any simple cause-and-effect conclusions. The impact of a wife's work on divorce is no less cloudy than its impact on marriage decisions. The realization that she can be a good provider may increase the chances that a working wife will choose divorce over an unsatisfactory marriage. But the reverse is equally plausible. Tensions grounded in financial problems often play a key role in ending a marriage. Given high unemployment, inflationary problems, and slow growth in real earnings, a working wife can increase household income and relieve some of these pressing financial burdens. By raising a family's standard of living, a working wife may bolster her family's financial and emotional stability.

Psychological factors also should be considered. For example, a wife blocked from a career outside the home may feel caged or shackled to the house—a situation some have dramatically likened to a pressure cooker with no safety valve to release the steam. She may view her only choice as seeking a divorce. On the other hand, if she can find fulfillment through work outside the home, work and marriage can go together to create a stronger and more stable union.

Also, a major part of women's inequality in marriage has been due to the fact that, in most cases, men have remained the main breadwinners. With higher earnings capacity and status occupations outside of the home comes the capacity to wield power within the family. A working wife may rob a husband of being the master of the house. Depending upon how the couple reacts to these new conditions, it could create a stronger equal

partnership or it could create new insecurities.

Given these conflicting and diverse factors that may have bearing on divorce, statistical demonstration showing a direct positive relationship between divorce and a wife working is unattainable. Often studies have reached the conclusion that families in which the wife is working are no more likely to separate or divorce than households in which only the husband is in the labor force.

The relationship between the expanding female work force and reduced fertility rates appears to be clearer. With advances in family planning, a majority of wives have managed to combine motherhood with work. The entry of women in the work force has not led to a vast increase in childlessness among married couples, but has led to a lower fertility rate among working wives when other social and economic factors are taken into consideration. Yet some reservation may be appropriate. In West Germany, for example, fertility rates of the native population during the 1970's have declined even more than in the United States, but with a smaller increase in female labor force participation.

*Coping with family-related duties.* The wife's responsibilities outside the home have not filtered back into a major reallocation of responsibilities within the family. With the rising costs of household help, the option to pay another person to do the housework is beyond the means of the vast majority. Also, there are limits as to the chores that can be passed on to the friendly neighborhood supermarket clerk or appliance seller. Even more than in the office or factory, too many household chores cannot be mechanized. Worksharing by other members of the family remains largely a hope. The working wife and mother is, therefore, left to her devices to cope as wage or salary earner and unpaid houseworker.

When the number of hours a working wife labors outside the home are added to the time spent on household chores, some studies have concluded that most working wives wind up laboring more hours per week than their husbands. Rough estimates based on data from the late 1960's and early 1970's indicated that a wife may average 65 hours on her combined jobs inside and outside the home (assuming that she holds a full-time job in the labor market). This exceeds the average time husbands spent working on the job and in the home by about 8 hours per week. However, a more recent study based on data from the mid-1970's indicates that married women labored about the same total hours in their combined jobs as men—roughly 60 hours per week. There has been only a very small increase in the hours of housework done by married men (still under 3 hours per week, or one-sixth the time spent by working wives).<sup>1</sup> It is difficult to make accurate estimates of time

use by men and women, but it appears that there still exists a significant sexual division of labor even if total hours worked may be becoming equal for many married men and women.

Just as pathologies within labor markets—such as sexual discrimination—have been slow in changing, so will home adjustments to the new realities of both husband and wife working outside. For example, while most men are just starting to become involved in household responsibilities, this trend soon may be the single largest impact on families associated with wives entering the labor force. In the absence of social upheavals, the slow evolution is toward family work roles based more on equality and less on sexual stereotypes. Many working wives appear to be assuming a larger role in making major family-related decisions than nonworking wives with no earnings, but again, change has been slow. Yet, there seem to have been some changes in sharing responsibility and authority.

### No turning back

If the survival of the family depends on women returning to the home to become full-time housewives and mothers, the institution's future existence is indeed fragile. There has been no decline in the career aspirations of women, and continued progress in family planning, bedroom technology, and household management will let more women become both wives and mothers as well as workers outside of the home. As the potential rewards and work opportunities for women expand, the psychic and economic attractions in the market place are likely to exert even greater pull.

With inflationary pressures and slow growth in productivity leading to sluggish gains and even occasional declines in real earnings, more families will depend on two wage earners just to make ends meet or to finance a higher standard of living. Women in the work force, including the majority of married women, are in the labor force to stay, and this is not a new phenomenon. It was only with the rise of the industrial revolution—and then only when it was in full swing and immigrants supplied adequate and cheap labor—that wives were viewed as full-time mothers. The current American family has a long way to go before it fully adjusts to these new and shifting work patterns. The greatest changes will be the reallocation of work responsibilities within households. A decrease of chores allocated along traditional sexist lines coupled with women sharing more effectively in the family decision process are the primary adjustments that will be made. These changes—unlike fads which come and go—will probably have some of the deepest and most lasting effects on the family institution and on American society. Instead of dissolution, they offer real opportunities for improved, more stable, and richer lives within families.

### Going it alone

It appears that female-headed families will remain a significant phenomenon on the American scene. Such families, despite feminist advances, are still more likely to be poor and to experience sustained economic hardship. Trying to be family head, mother, and full-time member of the labor force has been a difficult challenge for most women. Working women who head households are at an even more disadvantage than other women.

Single-parent families tend, however, to be a temporary phenomenon. Data on the gross flows of women who become family heads indicate that this condition is for many women only a way station, as they later marry or remarry. Still, the conditions experienced by these women and their children present serious problems covering a wide range of social issues from welfare to labor market discrimination. Many have found it impossible to pull families out of poverty without government help.

At the start of the 1970's, nearly 1 of 10 families was headed by a woman; this ratio rose to 1 of 7 families a decade later, when more than 8 million women headed families. Altogether, these families accounted for 26 million persons, including 12 million children. Today, 17 percent of all American children are being raised in a family headed by a woman, compared with 10 percent in 1970.

Black children are far more likely than white youngsters to live in a home maintained by a woman. In 1980, half of all black children were being raised in such a household, compared with 12 percent of all white children. A Hispanic youngster had about a 20-percent chance of living in this type of household.

The reasons families had a female head also changed during the 1970's. Historically, widows have represented the largest proportion of women who headed families. At the start of the 1970's, roughly 43 percent of female family heads were widows, twice the proportion who were divorced. By the end of the decade, divorced women accounted for 34 percent of all women who headed families, while widows represented 29 percent of the total. The relative rate of women who had never married and were heading a family had doubled during this period.

However, the rising incidence of families headed by women is not due exclusively to increasing marital instability or illegitimacy. Families headed by women increased by nearly 2 million between 1940 and 1970. About two-fifths of the increase is attributed to the propensity of women to form separate households rather than share housing with relatives. This pattern continued during the 1970's, when more than half of the households with a female head were formed for this reason. Income-support programs also may have boosted the growing ranks of women who head families, as did

more out-of-wedlock births and, of course, general population increase.

### **Economic realities**

Of the major differences that exist between households headed by women and those of married couples, distinctions based on income are easiest to quantify. Poverty haunts only 1 of 19 husband-wife families and 1 of 9 families maintained by men; but about 1 of 3 families headed by women live in destitution.

Beyond the higher prevalence of poverty, the entire income distribution of families headed by women is lower than that of other kinds of families. In 1979, about 4 of 5 families headed by women had earned incomes under \$15,000, compared with 3 of 10 of all husband-wife families and 1 of 3 families headed by men.

The median income of the families women head is less than half that of husband-wife households. Where dependent children are involved, the median drops to one-third. If a female family head has a child under 6 years, her family income on average is only two-fifths of that for a household headed by a woman with no youngsters.

Coupled with this factor are the younger ages of the women who are heading families. About 4 of 7 of the children who live in a household headed by a woman have a mother who is under 35 years. These younger women, who have a greater chance of having a child, represented 28 percent of all families headed by women in 1970. By 1979, this younger group had grown to represent 37 percent of the families headed by women.

National longitudinal data, which have followed female cohorts for several years, have increased our knowledge about families women head. Data tracking the same women—as they go through a dissolution of husband-wife family and then try making it on their own—give a clearer picture of this dynamic process than information based on cross-sectional estimates. The national longitudinal surveys at Ohio State University included interviews with a nationally representative sample of more than 5,000 women under 25 years and 30 to 44 years at the time of the first interview (1967 and 1968, respectively). These women were interviewed annually or biennially, and the data provided a time path of their experiences over 10 years. Some of the most important features indicated by longitudinal data concerning families women head are:<sup>2</sup>

*Temporary status.* There is a large flow of women who move into and out of being heads of families, and few women remain in this condition for an extended period. Over the first 5 years, the surveys found that as many as 16 percent of all adult women sampled were heading a household. However, only 9 percent were household heads during the entire period: 6 percent of the white

women and 21 percent of black women.

*Economic problems.* The transition from a husband-wife family to head of a household often creates dire economic problems which the women who head the new households often cannot solve without outside aid. For the older age cohort, the average household income for white families that experienced this disruption declined by 49 percent over the survey period. While the average income of black families fell by only 38 percent, their income prior to disruption of the family was only about two-thirds of the average for the white households. This same condition is also true for women in the younger age cohort.

*Employment patterns.* Labor force patterns of women who experience marital disruption is quite different for whites and blacks for both the younger and older women. When their marriages ended, the older cohort of white wives increased their labor force participation rate from 58 percent to 70 percent. For black women, just the opposite happened: their rate fell from more than 80 percent to 69 percent. Transition patterns also differ for black and white women concerning their seeking occupational training. When they became family heads, the number of the older women who obtained training increased by more than 40 percent for whites but fell by 37 percent for blacks. For younger white women, the labor force participation rate climbed from 51 percent to 68 percent after the disruption. Younger black women, unlike their older counterparts, experienced a decline in participation rates after divorce, but it rose much less than that for the young white women—from 46 percent to 53 percent. For younger white women after divorce, the chances of resorting to training increased by 23 percent, while for younger black women it fell by 13 percent.

Even if a female family head lands a job, her earnings are not likely to make up for the income lost because a husband has left. Average per capita income will decline by 20 percent for white families and 13 percent for black families.<sup>3</sup>

*Transfer payments.* Families headed by women depend on transfer payments as a major source of income. About 16 percent of all white female heads and 48 percent of black female heads receive public welfare payments. More than 23 percent of the white women who headed families, and 19 percent of the black women received social security or disability payments. One-third of the poor white female heads and more than 50 percent of poor black female heads received at least half of their household income from public income transfer programs. On average, earnings by a female head provided only about one-third of household income for

families living in poverty and about three-fifths for those above the poverty line.<sup>4</sup>

Thus, whatever other advantages a woman perceives in single parenthood over a bad marriage, most families headed by women find the going very rough economically. Even when they combine work with welfare and other transfer payments, many female heads of households can barely lift their families out of poverty—and a significant number live below the poverty threshold.

The word *family*, at one time, evoked a picture of a husband, a wife, and their children living together in one household. Now, a variety of cameos surround the central picture. None of the cameos, however, portray the extended family that many analysts had anticipated because they believed a separated woman would return to her parents' or grandparents' household, taking her children with her. An increasing percentage of never-married or formerly married mothers are heading their own households instead of living as a subfamily unit in someone else's household, emphasizing the precarious status of families headed by women. In extended families, a divorced, separated, or never-married mother could count on the financial and social support of other adult family members to help provide for basic needs and ease such problems as child care. Today, if a woman decides, or is forced by circumstances, to separate or divorce, the chances are that she will have to head her own household.

There are some indications that the increase in the single-parent household will not be as swift in the 1980's as it was in the 1960's and 1970's. The view that the woman should seek liberation outside a husband-wife family is not shared by the vast majority of female family heads. Nor is it correct to conclude that those women who remain family heads do so by choice. When questioned, long-term female family heads most often indicated that their current household structure is not their first choice.<sup>5</sup>

### Policy changes needed

Social policies can have a significant impact on the work and living decisions of households, even those that are well above the poverty threshold. The Federal in-

come tax codes are a prime example: in 1979, the estimated tax liability of 16 million couples exceeded \$8 billion, solely because they were married. Even couples with a relatively low family income pay a marriage tax penalty if there are several wage earners in the household. The marriage tax penalty in 1980 for a couple with a combined income of \$40,000 was \$1,900 (assuming standard deductions), while for a \$10,000-a-year couple, the extra tax liability was more than \$200. Whatever its equity and costs, there is little evidence that the marriage tax has had a statistically significant impact on marriage, but it may affect work decisions.

Other laws (including social security) affecting family income and work decisions are based on the assumption that the husband would work while the wife became a full-time housewife. Social security laws also assume that, once married, the couples would stay together. One problem with the social security system is that a wife's earnings result in higher total family benefits only if her entitlement exceeds 50 percent of her spouse's benefits. In most cases, the two-earner couple pays far more into the system than a one-earner couple, but receives only a marginal increase in benefits.

Many other social policies are based on family-related assumptions which existed in a bygone age. But American households have become highly pluralistic, and government programs will have to be attuned to the different needs and problems of various types of families. A comprehensive family policy has been impossible to fashion because interested parties cannot agree on even the basic goals. While one policy may seem more dramatic, incremental reform of the already existing system may be the most realistic approach to help families during this rough period of transition.

Shifting work roles are altering family life, and changes in living arrangements are having a feedback effect on labor markets. Whether the family is better off because of the changes depends, in large measure, on personal value judgments. Public policies can ease the transition, but such policies should consider that there is no longer one dominant family type. Despite problems, the family remains a resilient institution. Most Americans live in families, and will continue to do so. □

### FOOTNOTES

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<sup>2</sup> Frank L. Mott, *The Socioeconomic Status of Households Headed by Women* (Washington, Government Printing Office, 1979), pp. 10, 29, 45, and 52.

<sup>3</sup> Frank L. Mott and Sylvia F. Moore, "The Causes and Conse-

quences of Marital Breakdown," in Frank L. Mott, ed., *Women, Work, and Family* (Lexington, Mass., Lexington Books, 1978), pp. 123-24.

<sup>4</sup> Liz B. Shaw, *Economic Consequences of Marital Disruption* (Columbus, Ohio State University, Center for Human Resource Research, 1978), pp. 16 and 19.

<sup>5</sup> Christopher Lasch, *Haven in a Heartless World: The Family Besieged* (New York, Basic Books, 1977), p. 162.



# Is employer-sponsored life insurance declining relative to other benefits?

*In contrast to health and retirement packages, company life insurance provisions changed little for 1971–80, in the 56 plans compared; however, amounts rose, largely in response to pay boosts*

ALLAN P. BLOSTIN

Life insurance, health insurance, and private retirement programs are the three major types of nonwage benefits available to American workers from their employers. During the last 10 years, the characteristics of health insurance and retirement programs have changed markedly for a variety of reasons—union bargaining demands, employer social consciousness, Federal legislation, to cite just a few.<sup>1</sup> In contrast, the major provisions of employer-provided life insurance plans appear to have changed only slightly over the last decade, although the amount of insurance provided by many plans has increased as employee earnings have risen.

Why did company life insurance change so little, while corresponding pension and health benefits were dramatically transformed? One reason may have been that fewer workers were concerned about life insurance and more were interested in health and retirement benefits.

This study examines changes between 1971 and 1980 in the salient characteristics of 56 basic life insurance plans provided by 44 large employers or multi-employer associations.<sup>2</sup> Of the 56 plans, 23 were negotiated under collective bargaining agreements. Clearly, the plans are not a statistically representative sample of life insurance plans. However, they are large plans, covering occupa-

tional groups (43 covered over 10,000 employees and 11 covered over 100,000), and many are provided by leading companies in many different industries. Therefore, changes in these plans are probably indicative of general trends over the decade.

## Financing and benefit formulas

Fifty-one of the plans were paid for entirely by the employers in 1980, one more than in 1971. The other five were only partially paid for by the employer; plan participants paid the balance.

In both 1971 and 1980, three-fourths of the plans related the amount of life insurance provided to the employee's earnings. Thus, insurance protection for many employees has automatically kept pace with the rise in earnings, although not necessarily the cost of living. In 1980, 42 plans based their insurance amounts on earnings, one more than in 1971 (table 1). The number of plans that had a multiple-of-earnings (multiplies annual earnings to establish insurance amount) formula, rather than the somewhat less generous graduated-schedule-of-earnings (insurance amount fixed by earnings schedule) formula, rose from 21 to 24.

Insurance equal to annual earnings was provided by somewhat more than half of the plans with a multiple-of-earnings formula in both 1971 and 1980, and most of the remainder provided twice the earnings (table 2).

In most plans which use a graduated earnings schedule, the amount of life insurance increased about pro-

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portionally with earnings during the last 10 years. These increases are made periodically through the collective bargaining or plan amendment process rather than the automatic and continuous adjustment inherent in the multiple-of-earnings formula. For example, in 1971 a plan in the automobile manufacturing industry provided \$7,500 in insurance to employees who earned up to \$7,000. Then, for each additional \$500 in earnings, life insurance rose \$500, to a maximum of \$14,500. In 1980, the same plan gave \$13,500 in insurance to employees whose earnings were \$12,500 or less. Insurance then rose proportionally with earnings, up to \$27,000. For employees who earned more than \$27,000 a year, the maximum insurance was \$30,000. Over the decade, insurance increased at about the same pace as average earnings for full-time employees in the industry, which rose from about \$10,200 in 1971 to \$21,000 in 1980.<sup>3</sup>

Several plans did not increase insurance as rapidly as earnings. For example, one large plan in the steel industry in 1971 provided \$8,000 insurance to employees whose earnings were \$6,500 or less. For each additional \$1,000 in earnings, life insurance rose \$500. The maximum amount of insurance was \$10,500 for an employee who earned \$11,000 or more. By 1980, insurance coverage declined to approximately three-fifths of earnings. The maximum insurance was \$12,500 for an employee who earned \$20,000 or more. Between 1971 and 1980, average earnings for full-time, year-round workers in the industry rose from about \$9,300 to about \$23,000, but life insurance for these workers increased only from \$10,000 to \$12,500.<sup>4</sup>

The number of plans that provided a flat amount of insurance, regardless of earnings, dropped from 15 to 12, as two plans shifted to a formula based on length of service and one moved to an earnings-based formula.

**Table 2. Incidence of plans with multiple-of-earnings formulas, by size of multiplier**

Multiple of earnings formula	1980		1971	
	Percent	Number of plans	Percent	Number of plans
Total .....	100	24	100	21
Life insurance is equal to annual earnings times:				
Less than 1.0 .....	4	1	...	...
1.0 .....	54	13	57	12
1.5 .....	8	2	...	...
2.0 .....	33	8	43	9

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

The average benefit for employees who received a flat amount of insurance increased from \$6,100 in 1971 to \$7,900 in 1980. Three plans did not increase their benefits during the decade, and four increased their benefits by less than 50 percent. During this time, average hourly earnings for production workers and other nonsupervisory workers in private industry nearly doubled, so life insurance for many employees covered by flat benefit insurance provisions failed to keep pace with the increase in earnings.

**Permanent and total disability**

Permanent and total disability insurance provides benefits to an employee who is unable to work because of a nonoccupational or occupational accident or sickness. Usually during the first 12 to 24 months, disability is defined as total if the employee is unable to perform his or her own job. Afterwards, the definition of total disability becomes more restrictive, requiring that an employee be unable to engage in any gainful employment. In 1980, all 56 plans had some form of permanent and total disability insurance, compared with 54 in 1971.

Disabled employees are generally provided one of three main types of life insurance coverage:

- Continuation of the full amount of life insurance while disabled, for life or until a specified age. In 1980, 38 plans provided this kind of coverage, an increase of three from 1971 (table 3). This protection was provided at no cost to employees, in every case, in both years;
- Lump-sum or monthly payment of all or part of the insurance upon determination that the employee is totally disabled, provided by 14 plans in 1980, compared with 16 in 1971;
- Continuation of a partial amount of insurance with the remainder being paid in a lump-sum or monthly installments, provided by four plans in 1980 and three in 1971.

To receive a benefit during disability, a participant

**Table 1. Life insurance plans by selected characteristics, 1971 and 1980**

Item	1980		1971	
	Percent	Number of plans	Percent	Number of plans
Method of determination:				
All methods .....	100	56	100	56
Based on earnings .....	75	42	73	41
Multiple .....	43	24	38	21
Graduated schedule .....	32	18	36	20
Flat amount .....	21	12	27	15
Based on service .....	4	2	...	...
Plans with accidental death and dismemberment insurance ..	64	36	66	37
Fully employer-financed plans ..	91	51	89	50
Plans with retiree coverage .....	84	47	88	49

<sup>1</sup> Between 1971 and 1980, four plans that had similar benefits for all employees were revised to provide separate benefits based on employee group. Thus, there were 52 plans in 1971 compared with 56 plans in 1980. For comparison purposes, the four plans with identical benefits for all employees in 1971 were counted as separate plans for hourly and salaried employees. This accounts for 56 plans being shown in 1971 and 1980.

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

frequently must be below age 60 or 65. This was the case in all but a few of the plans that paid a cash benefit. However, a third of the plans that only continued insurance and made no cash payment did so without regard for the disabled employee's age.

When insurance is continued during the period of disability, the amount is usually maintained until a specified age, or for life. In both 1971 and 1980, approximately 90 percent of the plans that continued coverage maintained the insurance level until at least age 62. After the disabled employee reaches the specified age, insurance is either discontinued or reduced to a level that would have been provided had the employee retired at the time.

### Other provisions

*Retiree coverage.* In 1980, 47 plans provided life insurance for retired employees, compared with 49 in 1971, as table 1 indicates. During the period, one company eliminated retiree insurance in both its hourly and salaried employee plans.

In 1980, all but two plans with retiree insurance reduced the amount of coverage after retirement; all 1971 plans did so (table 4). Most frequently there was more than one reduction—usually a percentage reduction

**Table 4. Incidence of providing retiree coverage, by method of reducing coverage for retirees, 1971 and 1980**

Method of reduction	1980		1971	
	Percent	Number of plans	Percent	Number of plans
All plans with coverage	100	47	100	49
One reduction	36	17	43	21
Percent	9	4	10	5
Dollar amount	19	9	14	7
Varies by earnings	...	...	8	4
Varies by service	9	4	10	5
More than one reduction	60	28	57	28
Percent	55	26	53	26
Other	4	2	4	2
No reduction	4	2	...	...

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

each year until a specified level was reached, which then became permanent.

*Accidental death and dismemberment.* Many employers who provide life insurance give additional benefits if death or dismemberment occurs accidentally. This form of insurance was offered by 36 plans in 1980, one less than in 1971. Table 1 indicates this. Coverage was equal to basic life insurance in 21 plans which provided accidental death and dismemberment insurance in 1980, compared with 20 in 1971. In both years, the remaining plans had coverage which was less than that of basic life insurance. Accidental death and multidismemberment are almost always covered for the same amount. Single dismemberment—a leg, arm, or hand—is usually covered for one-half the amount provided for multidismemberment.

*Supplemental and dependent coverage.* In both 1971 and 1980, nine plans offered participants the opportunity to purchase supplemental life insurance in addition to basic life insurance. Supplemental life insurance requires the employee to pay part of the cost. Another type of insurance which may be offered to employees is life insurance for dependents. This coverage, which usually pays a specified dollar amount to the employee in case of the death of the spouse or unmarried dependent children, was offered in three plans in 1980, compared with one plan in 1971. □

**Table 3. Incidence of life insurance plans by provision for permanent and total disability, 1971 and 1980**

Provisions for disability	1980		1971	
	Percent	Number of plans	Percent	Number of plans
All plans	100	56	100	56
No provisions	...	...	4	2
Full amount continued if disability occurs	68	38	63	35
At any age	23	13	21	12
Before age 60	23	13	23	13
Before age 65	21	12	18	10
Payment made if disability occurs	25	14	29	16
At any age	4	2	2	1
Before age 60	12	7	18	10
Before age 65	7	4	7	4
Other	2	1	2	1
Combination of payment and continuation of coverage	7	4	5	3

<sup>1</sup> See footnote 1, table 1.

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

### FOOTNOTES

<sup>1</sup> See Robert Frumkin and Donald Schmitt, "Pension improvements since 1974 reflect inflation, new U.S. law," *Monthly Labor Review*, April 1979, pp. 32-37 and Dennis Quigley, "Changes in selected health care plans," *Monthly Labor Review*, December 1975, pp. 22-26.

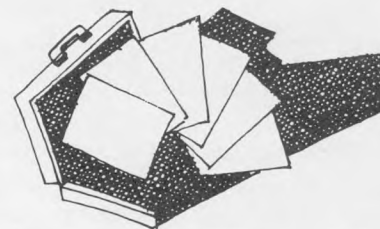
<sup>2</sup> Data relate to plans which were in the *Digest of Health and Insurance Plans, 1971 Edition* (Bureau of Labor Statistics, 1972), and were analyzed as part of the Bureau's 1980 Level of Benefits Survey. A multiemployer association is a group of two or more employers in a

specific industry which negotiates wages, benefits, and working conditions with one or more labor unions.

<sup>3</sup> See *Employment and Earnings*, March 1972, table C2, p. 84, and June 1980, table C2, p. 86. Estimates are for a worker paid for 2,080 hours a year.

<sup>4</sup> See *Employment and Earnings*, March 1972, p. 82, and June 1980, p. 84.

# Conference Papers



## Labor movement theory and the institutional setting

JACK BARBASH

The usefulness of labor movement theories is necessarily limited by the historical milieu and the economic environment in which they come into being. It is the theories' invariable claims to universality and permanence that turn out to be their undoing.

In this context, a theory of the labor movement means theories which generalize about labor movement goals, usually in terms of capitalism vs. socialism. I give the influential theories of the labor movement the following labels: (1) utopian, (2) Marxist, (3) Leninist, (4) Wisconsin, (5) neo-Marxist, and (6) social contract. I wind up by offering a theory of bargaining effectiveness of my own.

### Early theories

The utopians include the cooperators and the anarchists. Principal examples of this type of theorist have been Robert Owen in Great Britain, Horace Greeley in the United States, P. J. Proudhon in France, and Mikhail Bakunin in Russia. Karl Marx and Friedrich Engels called them utopians because they conceived their brave new worlds in isolation from the main course of capitalist development.

The utopian vision, as Adam Ulam put it, was "the legacy of an agrarian society to its industrial successor, [reflecting] the clash of peasant values with the reality of industrial life."<sup>1</sup> Similarly, but in another culture, Greeley represented "a protest *against* [rather than] a product *of*, the new economic condition."<sup>2</sup> The rise and fall of the Knights of Labor marked the last cry of American utopianism.

Marxian socialism displaced utopianism as the prevailing theory of the labor movement of its time. As it

turned out, it was a theory which grew out of the workers' "cry of pain" at the onset of industrial capitalism. The theory has not been so well suited to capitalism in maturity.

For Marx, trade unionism was an essential stage of development in the evolving socialist consciousness of the working class. As the dialectic of capitalism unfolded the working class would evolve from economism (as it was to be called later) or from a "craft aristocracy" to industrial unionism, to the political consciousness of a working-class party, to the socialist consciousness of its own class *socialist* party and, at the end, socialism. Trade unionism was conceived to be a training ground in power accumulation but, on its own, incapable of arresting capitalism's inexorable drive toward working-class "immiseration."

The imminence of socialism which Marx and Engels saw emerging out of the mounting working-class protest was not, in the late 1840's, a far-fetched vision. Engels, investigating first hand the working out of the British industrial revolution, reported a class-conscious working-class movement becoming increasingly aware of its impending confrontation with the ruling bourgeoisie.

But as Engels was to concede later, he and Marx both had mistaken the birth pains of industrial capitalism for its demise. "The state of economic development on the continent at the time was not, by a long way, ripe for the elimination of capitalist production."<sup>3</sup>

V. I. Lenin's trade union theory grew out of the collision between feudal absolutism and industrialization in late 19th-century Russia. Ideologically, Lenin's theory was an anti-revisionist polemic. The Economists argued that Russian labor in this stage could only sustain trade unionism; that economic organization and struggle, not revolution, had to be the next step in the liberation of the working class. But for Lenin "there could not yet be Social Democratic consciousness among the workers. The consciousness could be only brought to them from without,"<sup>4</sup> that is, from the revolutionary intellectual.

Lenin's theory of an elite corps of revolutionary professionals who knew the way ahead and could survive the repression was not out of place in the Russia of his day, although many Marxists inside and outside Russia, including Rosa Luxemburg for one, vigorously contested this point.

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## Wisconsin school

The "Wisconsin" theory of the labor movement, with John R. Commons and Selig Perlman as the principal spokesmen, constructed an American synthesis of two contrasting currents. There was the mainstream economics of the day, which held trade unions to be ineffective and irrelevant when they were not monopolistic. And then there was the Marxist analysis which treated trade unionism as a way station toward socialism.

Commons and Perlman took on the left, arguing that America was different. (Later the Communists were to anathematize this as "American exceptionalism.") The revolution which Marx had projected in his theory of history and in his implied social psychology was valid, at best, only at a particular time and place in history and could not be universalized from a "narrow foundation of history." Marx, in Commons' view, systematically underestimated the effects of trade unionism, labor legislation, corporate capitalism, and classless humanitarianism in arresting revolutionary consciousness.

In the Wisconsin view, Marx *overestimated* international working-class solidarity. The Wisconsin theoreticians, by contrast, stressed the fragmentation of worker solidarity by *sectional* loyalties to race, nationality, ethnicity, and craft.<sup>5</sup> In Commons' view, Marx's theory of history was psychologically faulty, seeking "to get rid of human will and to explain phenomena as the working out of natural forces."<sup>6</sup>

Other indigenous circumstances were also frustrating the unfolding of the Marxist historical design. Commons identified "competitive menaces" arising out of the extension of markets as the unique factor molding the development of the American labor movement.<sup>7</sup> The American worker, therefore, was not suited to the role assigned to him by a Marxist "theory of exploitation growing out of the nature of production" and an "idealistic remedy of common ownership."<sup>8</sup>

Marx's unyielding class struggle was at fundamental odds with the core of the Wisconsin idea; that is, that democratic institutions have the capacity to resolve conflict through "industrial government" and due process determinations of "reasonable value." The Wisconsin school acknowledged the existence of classes but rejected the apocalyptic vision of an "irrepressible conflict."<sup>9</sup> "Fair play between social classes" and good will could convert the "'class struggle' of socialism into class harmony."<sup>10</sup>

Commons was not always clear what he had in mind by reasonable value although it occupies a central place in his scheme of thought. In his writings, reasonable value appears to be the due process *method* of arriving at a result rather than the determinate result *per se*. Reasonable value resolves the clash of class interests because it flows from "due process of thinking" and "due

process of law." Due process of thinking incorporates the "complete investigation which seeks all the facts" in concrete cases.<sup>11</sup> Due process of law means, among other things, "public hearing, notice of hearing and related procedure."<sup>12</sup>

Perlman, more than the other Wisconsin institutionalists, grasped the nettle of the debate over union goals. Perlman rejected socialism as the logical and historical mission of the working class or the trade union movement. The manual worker, according to Perlman, is primarily motivated by a "fundamental scarcity consciousness . . . which rules unionism today as it ruled the guilds of the past." "Job control," "mastery over job opportunities" are the *real* roots of the manualist social group psychology.<sup>13</sup>

American trade unionism, Perlman said, has developed a bargaining approach which requires trade unions to come to terms with capitalism. The purpose of bargaining, after all, is agreement. Trade unions have come to capitalism, he said "as bargainers, desiring to strike the best wage bargain possible. What impresses them is not so much the fact that the employer owns the means of production but that he possesses a high degree of advantage over them."<sup>14</sup>

The formative environment of Commons and Perlman was the early years of the 20th century. This was a time of isolated craft union enclaves with a leadership in the 1920's that was, in Perlman's words, a "curious blending of 'defeatism' with complacency," lacking "a will to action," and an approach to the organization of the basic industries "which rarely proceed beyond expressions of good intentions."<sup>15</sup>

Scarcity consciousness, to be sure, still dominates the psychology of the workers but it has found, one might say, a new and "higher" center of gravity. For a large part of the working class, high-level or full employment, the welfare state, and trade unionism have moderated the elemental fears of hunger and destitution. For many the paramount question is not so much the absolute adequacy of earnings as it is of the equitability of their distribution.

Job consciousness, which figures so centrally in Perlman's theory, is still of primary importance. But job consciousness now has taken on industry- and economy-wide dimensions. Protectivism is still the vital core of American unionism but its scope and depth go far beyond shop work rules, with profound effects on union structure, style, and objectives.

The classic Wisconsin School did its work when the unions had too little power. Today the public image has it that the unions have too much power. Since Perlman and Commons matured in the underdog era, their theories and concepts cannot altogether reflect the realities of what Sumner H. Slichter, another Wisconsin product, called the "laboristic state."<sup>16</sup>

*Social contract.* The theory of the labor movement embodied in the social contract goes to the question of restraints on the use of union power in the era of full employment and inflation. The theory is derived from the observation of practice. The origin of the term can be traced to the British economist Thomas Balogh, who wrote in a Fabian Tract in 1970: "The achievement of full employment necessitates a complete reconsideration of our attitude to economic and social policy, a rethinking of social institutions and obligations and responsibilities, both for individuals and groups. We need a new 'contrat social', a deliberate agreement on economic and social policy."<sup>17</sup>

In its general form, I define the social contract as an understanding which commits the unions, as the initiating force, to a policy of wage moderation; in return, the government is committed to a policy of maintaining real income and economic growth, and avoidance of the method of mass unemployment as the *principal* means for curbing inflation. The social contract also carries with it a process of continuing consultation between the trade union movement and the government, typically of the same political persuasion or party as the unions.

Although the social contract got its name in the United Kingdom, the spirit of the contract probably originated in Sweden, which was the first postwar society to confront full employment and inflation. Sweden's labor-industry-government arrangement represented the "ideal type" of social contract until it came undone in 1980's almost-general strike. Variations on the social contract can be found in Austria and at various times in the Federal Republic of Germany and The Netherlands.

The social contract has lasted as long as it has because sustained growth in the postwar period made possible a sustained cycle of rising real income. But, the social contract is now in trouble because growth has slowed while inflation has speeded up, and there is, as a consequence, less to divide and more to argue about.

But in addition to seeking improvements in the price of labor, labor movements are also after more power. Union demands for codetermination, industrial democracy, wage earner funds, and so forth, have raised questions about the ownership and control of the means of production. The social contract was premised implicitly on the exclusion of such questions from the agenda, but having been introduced explicitly, have at the least interrupted the relationship temporarily and, at the most, ruptured it permanently.

Western Europe may be winding down the social contract, but the United States may be renewing it in the form of a "National Accord" between the U.S. Government and the AFL-CIO, which is more compatible with the historical style of American industrial relations. In its own words, the National Accord "provide[s]

for American labor's involvement and cooperation with the Administration on important national issues." It pledges, among other things, equitable approaches to inflation, the fair "sharing of austerity" and the pursuit of "full employment, price stability and balanced growth." The accord acknowledges the need for "discipline and restraint" and "responsible behavior with respect to pay and prices." Implementation requires "direct participation by labor, business and other public representatives . . . toward a fair and workable program."<sup>18</sup>

*Neo-Marxism.* To put some name to it, "Neo-Marxism" is the latest of the historic confrontations between revolutionary intellectuals and trade unionism. It is responsive to the failure of trade unions of mature capitalism to fulfill their revolutionary mission. It is *neo*-Marxism because Marx's ideology rested on an indispensable working-class foundation; the neo-Marxists, each in their own way, have given up on the industrial working class of advanced capitalism as a viable revolutionary force. Baran and Sweezy, in the most authoritative exposition of neo-Marxism, state:

Traditional Marxian orthodoxy that the industrial proletariat must eventually rise in revolution against capitalist oppressors no longer carries conviction. Industrial workers are a diminishing minority of the American working class and their organized cores in the basic industries have to a large extent been integrated into the system as consumers and ideologically conditioned members of the society. They are not, as the industrial workers were in Marx's day, the system's special victims, though they suffer from its elementality and irrationality along with all other classes and strata—more than some, less than others.<sup>19</sup>

### Bargaining effectiveness

With all the limitations noted, I think Perlman provides the best fit for the American trade union situation of our times. One of the most powerful of these insights is his observation that American trade unions don't want to overthrow capitalism as long as they can bargain with it. (There may be a question as to whether the Europeans want to either.)

I try to build on that insight—and others, for that matter, including the work of J. B. S. Hardman, Arthur M. Ross, John T. Dunlop, and Harold M. Levinson<sup>20</sup> to come up with what might be called a *trade union* theory of the labor movement, as I understand it; that is, a theory which one can derive from trade union behavior.

To begin with: modern trade unionism (that is, more-or-less autonomous unions with an effective right to strike) is a product of mature capitalism and is not to be found elsewhere. But that doesn't make unions "pro-capitalist" in any positive ideological sense. The American union approach to capitalism is instrumental, not ideological. Mature capitalism just happens to be the most favorable environment for bargaining effectiveness,

which is what unions value above all else.

Trade unions do, of course, maximize or "satisfice"; at other times they even agitate for revolution. But these objectives have to give way when they conflict with bargaining effectiveness.

Bargaining effectiveness means the union's ability to command support from its rank and file and to "command respect" from employers, as we heard Commons say earlier. A union commands respect from an employer when its strike threat is sufficiently credible.

Bargaining effectiveness excludes revolution because the employer will not sit down with a union to negotiate away his own existence. At the same time, it is precisely the union's ability to deal with the employer over the terms of employment that gives it its essential meaning.

Since most unions originated and grew up in an ideological environment, bargaining effectiveness is influenced by ideology, but only at the margin. Swedish unionism represents the most prominent example of unionism motivated by ideology in a democratic society. Its demands for industrial democracy, wage earner funds, quality of worklife, and its involvement in a social contract relationship are unquestionably connected with its commitment to democratic socialism.

The theories discussed earlier reflect the evolving nature of capitalism. In the breakout stage, industrial capitalism inflicts such heavy blows on traditional ways that workers' organizations turn to protest and even withdrawal. This is the topan response.

As industrial capitalism hits its stride, the trade union shock effect, if not the trade union as such, forces capitalism to shed some of its grosser exploitative behavior and humanize its ways. But instead of obstruct-

ing capitalism's profitability, as might have been expected, humanization goes hand-in-hand with profitability and a rising standard of living for the working classes which aborts the worker immiseration Marx counted on to make his revolution. Collaterally, political structures based in the labor movement emerge to cope with social injustice.

At first, full employment and the welfare state provide part of the answer to social injustice, later they become part of the problem, which is: how to sever the connection between full employment and inflation. Later on, that connection is reinforced by crises in energy and environment and by the high level of consumership brought about by the affluent society. At some point in the inflation dynamic, trade unions in a democratic society cannot escape—they try to—becoming a part of the solution, and the social contract is one of the consequences.

Throughout the process of U.S. capitalist development, particularly in the New Deal period and afterward, trade unionism sinks its roots in the nooks and crannies of the society and becomes a powerful institution of power with interests that are, at various points and at various times, distinguishable from the interests of its individual constituents. In these circumstances, the bargaining effectiveness of the union as an institution understandably becomes the primary reason for its existence.

What we have been witnessing for a generation is the state's radical modification of capitalism, and with it, modification of capitalism's tolerance for autonomous unionism with the effective right to strike. That's what tomorrow's theories of the labor movement will have to try to explain. □

— FOOTNOTES —

<sup>1</sup> Adam Ulam, *The New Face of Soviet Totalitarianism* (New York, Praeger Publishers, 1963), p. 18.

<sup>2</sup> John R. Commons, "An Idealistic Interpretation of History," *Labor and Administration* (New York, Macmillan Co., 1923), p. 49.

<sup>3</sup> *Marx-Engels Selected Works* (Moscow, Foreign Language Publishing House, 1955), Vol. I, p. 125.

<sup>4</sup> V. I. Lenin, *What Is To Be Done* (New York, International Publishers, 1943), p. 40.

<sup>5</sup> John R. Commons, *Industrial Goodwill* (New York, McGraw-Hill, 1919), pp. 187-94.

<sup>6</sup> John R. Commons, *Legal Foundations of Capitalism* (Madison, University of Wisconsin Press, 1957), p. 376.

<sup>7</sup> Commons, *Labor and Administration*, ch. XI, pp. 2 and 7.

<sup>8</sup> *Ibid.*, p. 259.

<sup>9</sup> Commons, *Industrial Goodwill*, p. 39.

<sup>10</sup> Commons, *Labor and Administration*, pp. 2, 3, 27.

<sup>11</sup> Commons, *Legal Foundations of Capitalism*, p. 351.

<sup>12</sup> *Ibid.*, p. 107.

<sup>13</sup> Selig Perlman, *Theory of the Labor Movement* (New York, August Kelley, 1928; reprinted 1949), p. 278.

<sup>14</sup> Selig Perlman, *A History of Trade Unionism in the United States* (New York, Macmillan, 1929), pp. 266-67.

<sup>15</sup> Perlman, *Theory of the Labor Movement*, pp. 232 and 233.

<sup>16</sup> *Potentials of the American Economy* (Cambridge, Mass., Harvard University Press, 1961), p. 255.

<sup>17</sup> "Labour and Inflation," Fabian Tract 403 (London, Fabian Society, October 1970), p. 11.

<sup>18</sup> Statement adopted by the AFL-CIO Executive Council, Washington, Sept. 28, 1979.

<sup>19</sup> Paul Baran and Paul Sweezy, *Monopoly Capital* (New York, Monthly Review Press, 1966), p. 363.

<sup>20</sup> J. B. S. Hardman, *American Labor Dynamics* (New York, Harcourt Brace, 1928); Arthur M. Ross, *Trade Union Wage Policy* (Berkeley, University of California Press, 1948); John T. Dunlop, *Wage Determination Under Trade Unionism* (Cambridge, Mass., Harvard University Press, 1942); Harold M. Levinson, *Determining Forces in Collective Bargaining* (New York, John Wiley & Sons, 1966).

# Foreign Labor Developments



## Private rental housing abroad: dwindling supply stirs concern

E. JAY HOWENSTINE

There is a lively debate as to whether the United States is facing a crisis in the private rental housing market. The General Accounting Office says yes.<sup>1</sup> The "Pollyana Institute" says no.<sup>2</sup> And among the participants in the Conference, "Rental Housing Crisis: Implications for Policy and Research," convened by the Department of Housing and Urban Development on November 14, 1980, a wide range of views was expressed.<sup>3</sup> In this setting, a review of the experience of other industrialized countries with private rental housing can be instructive.

Up until World War I, in most industrialized countries, the bulk of the housing stock was private rental housing.<sup>4</sup> For example, roughly 90 percent of the housing supply of the United Kingdom was privately rented in 1914 (and this was probably roughly representative of most industrialized countries at the time). This position, however, was about to change radically. The 1920's ushered in an epoch of steady decline in the relative importance of private rental housing in most countries.

Many forces were at work. Imbued with a strong social consciousness of housing needs of the working masses, most European governments embarked on social housing programs to replace slums, particularly after World War II. The rationale was simple. Because the mass of workers could not afford to buy or rent decent housing, the only recourse was for governments to build rental housing at rents that workers could afford to pay.

Second, workers increasingly banded together and through their own resources—often supplemented by assistance from trade unions and governments—built low-cost cooperative housing. After World War II, this movement became the nucleus for large-scale programs

in many countries promoting nonprofit housing organizations.

Third, individual homeownership became an increasingly attractive alternative for workers earning higher income. Particularly after World War II, the age of affluence associated with high economic growth rates (often supported by government financial incentives such as liberal tax subsidies and more recently by the prospect of big capital gains) made it possible and profitable for more and more of the growing middle class to own their own homes.

Finally, the adoption of rent controls, first during World War I and again during World War II, created an institutional framework that increasingly tended to undermine the profitability of rental housing as a private investment.<sup>5</sup>

### Data not easily available

Unfortunately, most national censuses have not collected data on the private and public components of the rental housing stock. Certain fragmentary data are available, however, on the private rental housing sector as a percentage of the national housing stock in a dozen industrialized countries.

Except for Canada (where the supply increased from 33 percent in 1961 to 34 percent in 1976<sup>6</sup>) and Japan (where it rose from 19 percent in 1958 to 26 percent in 1979<sup>7</sup>), all of the countries have experienced a long-term shrinkage in the size of the private rental housing sector. The most dramatic fall was registered in the United Kingdom—from 90 percent in 1914 to 15 percent in 1976.<sup>8</sup> For other selected industrialized countries, the private rental housing sector in the United States was 53 percent of the national housing stock in 1900, down to 31 percent in 1978<sup>9</sup>; New Zealand recorded 47 percent in 1916, down to 17 percent in 1971<sup>10</sup>; Australia had 45 percent in 1947, down to 22 percent in 1971.<sup>11</sup>

Of the selected European countries, the private rental sector in Denmark was 35 percent of the national housing stock in 1955, down to 24 percent in 1979;<sup>12</sup> West Germany, 68 percent in 1948, down to 34 percent in 1972 (another author recorded 50 percent in 1972);<sup>13</sup> and in Ireland it was 17 percent in 1961, down to 12 percent in 1979.<sup>14</sup> The Netherlands had 46 percent in 1956, down to 23 percent in 1975.<sup>15</sup> Finland's average recent annual rate of decline is 10,000 units—1.8 percent of

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the total rental stock.<sup>16</sup> France had 41 percent in 1968, the only data recorded for this country.<sup>17</sup>

The conclusion emerges clearly: in most industrialized countries, the private rental housing sector is considerably smaller today than it was in 1945 and substantially smaller than in the early 1900's. What has been the response of governments to this decline?

### **The reassessment of private rental housing**

By the last half of the 1970's, the position of the private rental housing sector had deteriorated so badly that governments were moved to reassess its role for a number of reasons. First, there appears to have been a new appreciation of the fact that this sector performs a number of functions which the other sectors do not discharge effectively or cannot perform at all.<sup>18</sup> It provides an essential interim arrangement for young persons who cannot yet afford, but want to buy their own homes, or people who can afford but who do not want the responsibilities of homeownership. It meets the needs of special groups, such as single people, students, divorced and separated couples, refugees and unmarried professionals, particularly in the inner city.<sup>19</sup> By contrast, public housing was believed to be better designed to meet more traditional general housing needs, such as those of large families, low-income families, and the homeless.

Moreover, private rental housing contributes an important degree of flexibility to the housing market. A dynamic economy requires, among other things, the type of housing that provides easy and immediate access for members of the labor force who are attracted to growth centers or growth industries, or who are upwardly mobile in their occupations. There is a need, too, for transitional accommodation for those who may not be eligible for public housing, or if eligible, for whom there may not be a public housing vacancy.<sup>20</sup>

Second, experience demonstrated that large-scale slum clearance and urban redevelopment often impaired, and in cases, even destroyed the social fabric of vibrant communities.<sup>21</sup> Government increasingly recognized that respect for people demanded a more sensitive and flexible policy in preserving the social structure while rehabilitating the physical environment—a realization that redounded considerably to the benefit of the private rental housing sector.<sup>22</sup>

A third factor has been the new patterns of household formation at both ends of the age scale. Young people are forming independent households earlier in their life cycle than formerly. There has also been a significant increase in single person households, particularly of women. At the same time, rising income levels have enabled many retirees to set up their own households. These circumstances are attributable to more generous social security programs and to increased savings resulting from economic affluence.

Fourth, the rapid rise in costs of new construction placed greater fiscal burdens on governments struggling to curb public expenditures in their attacks on inflation.<sup>23</sup> The revival of new private rental housing makes it possible for governments to disengage from some of their heavy financial management responsibilities for public rental housing, and to direct more attention to rehabilitating existing housing stock—much of which is private rental housing, and much less expensive than new construction.<sup>24</sup> Fifth, the sharp rise in housing costs also increasingly put homeownership beyond the reach of large numbers of potential owners.

Sixth, by the middle of the 1970's, most countries had succeeded in eliminating the quantitative backlog of housing needs inherited from the past. This fact contributed to major national policy shifts in the late 1970's toward qualitative improvements in housing services, the rehabilitation of the existing housing stock, and the reduction of excessive shelter-to-income ratios of low income households<sup>25</sup> (shifts which also tended to elevate the importance of the existing private rental housing sector). Finally, the historical preservation movement played a minor, though strategically important, role in enhancing the value of the private rental housing stock.

Thus, within recent years, there has been a noticeable reawakening to the gravity of the problem, despite a minority view in some countries that presses for municipalization of land and housing as a social service. A fairly general awareness seems to have developed that private rental housing is an essential component in a well-balanced national housing policy. And although there is no chance that it will be restored to the prominence it had before World War II, a wide spectrum of legislation has been dedicated to the preservation, revival and promotion of private rental housing.

### **Preserving the private rental housing stock**

There is among industrialized nations a wide area of agreement that one of the first priorities is to ensure that the private investor receives a "fair return on capital". To many this means dismantlement of rent controls. But at this juncture, this is an almost politically impossible course of action. Despite many bold and imaginative attempts to decontrol, all governments are still caught up with some form of rent regulation, control of rental tenure, or both.

The second best solution, then, is to incorporate some concept of "fair" or "reasonable" rate of return on capital into the rent regulation system. In some of its applications, the "fair rent" concept seems to offer a practical way for achieving a genuine reconciliation of the tenant's need for protection against excessive rents which exploit a scarcity situation and the landlord's need for a fair return on capital. Other applications

seem to fall short of this realization.

Meanwhile, governments have adopted a wide variety of measures to rehabilitate the private rental housing stock. Early in the post-World War II period, grants were widely used to partially cover the costs of specific structural improvements, such as a bath, inside flush toilet and kitchen sink with hot and cold water, but under rent controls the landlord's response was often lethargic. Later in the 1970's, governments adopted more comprehensive rehabilitation programs, providing grants covering 20 to 50 percent of the cost of a wide range of improvements in existing housing, including thermal and sound insulation; heating and cooking facilities; and general modernization.

Most success appears to have been achieved through the area approach. This method concentrated efforts in areas of high stress; supplemented housing renovation with improvements in the local environment; sometimes introduced elements of compulsion although the reaction to this was clearly mixed; and generally aimed to create a visible, organized momentum in an upward direction.

The area concept has not been free of criticism, however. It discriminated against needy households outside the selected areas. This concept overlooked the fact that certain types of substandard areas perform an important social function for certain kinds of people, for example, youth, recent movers, and refugees of various sorts. Furthermore, the area concept substantially increased management costs, and has contributed to "gentrification"—the displacement of older, poorer residents by new, more affluent, generally younger households.

One of the most effective devices for increasing private landlords' income and thereby promoting a high level of maintenance and repair work has been the housing allowance. Upward adjustment of rent ceilings is politically more palatable and socially more equitable if consumer subsidies can alleviate the high rent to persons living on fixed incomes, for example, the elderly. The Federal Republic of Germany was the first country to link consumer housing subsidies with relaxation of rent controls as a major instrument of national policy in 1955. Since then, many European governments have adopted a similar approach.

### **Stimulating new private rental housing**

The stance of governments generally has been that active support is necessary if the private rental sector is to be revived and play a vital role in the national housing market.<sup>26</sup> An obvious priority was the exemption of new private unaided rental housing from rent controls. This seems to have been uniformly practiced in most countries. Considering rapidly rising building costs and the high rents that had to be charged, most of such

construction was destined for high- and middle-income households. This part of the housing market was of minor concern to governments and, on the whole, may not have been too adversely affected during the postwar period.

On the other hand, shelter for the mass of workers was of fundamental concern to governments; hence the promotion of private rental housing for them was treated differently. Governments have extended various kinds of direct and indirect financial assistance to private landlords on two conditions: construction must not exceed certain space and structural standards; and letting must be within certain income limits on tenants and within specified rent ceilings. Two other factors have provided additional incentives for private landlords: liberation from rent ceilings after a given period of time (for example, in the Federal Republic of Germany 10 years after direct subsidies cease); and the prospect of long-term capital gains.

The basic problem has been that rents of new housing built at high cost levels have been far out of line with rents of equivalent accommodation in the existing housing stock. Governments have tried to bridge this gap and to bring rents of new housing within the reach of workers by rescheduling mortgage payments to take account of rising housing costs and rising incomes. The principle has been that, as incomes rise over the long term as a consequence of technological improvements and economic growth, households are able to pay higher rents with no extra burden. If rents and mortgage payments are kept initially low when workers' financial capacities are limited, but are progressively increased as incomes rise (from improved productivity and perhaps continued inflation) the costs of new private rental housing may be (more) fully met in the long term.

Governments have applied this principle in three ways: by rescheduling rates of amortization of capital different from the traditional flat rate system; by rescheduling rates of interest different from the conventional fixed rate system; and by introducing flexible interest subsidy systems to facilitate the rescheduling of mortgage payments of principal and interest. Norway was the first country to revise its housing finance policy in 1966. For the first 5 years, no payment of principal on the State Housing Bank mortgage was required; thereafter, the rate of amortization was progressively increased at 5-year intervals. To take still more account of the limited financial capacities of young married couples, this system was further liberalized in 1973 by rescheduling interest rates to start at 4 percent and gradually increase with the passage of years.

Sweden followed the same general principle with its "parity loan" program in 1968, the Netherlands adopted a sophisticated "dynamic cost-price" rental

system in 1975, and other countries including Finland, France, the Federal Republic of Germany and Switzerland implemented much the same general objectives.

More conventional subsidy systems were also applied to private rental housing. Below-market interest rates were extended in Belgium, Canada, Japan, the Netherlands and Switzerland. For example, the Belgian National Housing Society extended 66-year loans at 1.5 percent interest. Outright capital subsidies have been offered by at least two countries, Canada and France. Operating subsidies for limited periods have been made available in the Federal Republic of Germany (5 years) and Switzerland (up to 25 years). Canada and Switzerland have also guaranteed mortgages with a view to lowering the interest rate which the borrower has to pay.

Tax concessions have been another tool to stimulate private rental housing. At least two countries—the Federal Republic of Germany and Japan—have established accelerated depreciation allowances as an incentive for investment in rental housing. Canada has adopted a tax shelter system for rental housing, while the Federal Republic of Germany has exempted rental housing from certain land taxes.

As in the case of existing housing, the housing allowance has proved to be an effective tool for helping to bridge the gap between high rents of new construction and tenants' ability to pay.

The fact that governments have supported private rental housing in a variety of ways is testimony to the importance which they attach to the perpetuation and revival of this sector.

### Nonprofit housing organizations

Rental housing provided by nonprofit housing organizations (a rental tenure falling midway between public housing, on the one hand, and private rental housing, on the other) has played a major role in national housing policy in many countries.

As might be expected, governments have extended

more generous assistance to nonprofit housing associations than to private rental housing. They have been solicitous of capital needs, through loan guarantees, direct loans and capital grants. They have also (through the provision of interest subsidies, operating subsidies and tax concessions) been cognizant of the need to keep operating costs low so as to keep rents low.

### Conclusions

In most of the highly industrialized world, the private rental housing market has been in critical condition for a long time. Within the last five years, housing issues have become so sufficiently urgent that at least six countries have appointed national commissions to examine the problem.

Quantitatively, most countries have experienced a substantial decline in the percentage of private rental housing not only in the national housing stock but also in annual production. It is doubtful that the supply is sufficient to meet the demand or the need for this type of housing.

Qualitatively, a large part of the existing private rental housing stock is substandard and in urgent need of modernization. Financially, large numbers of low-income households are bearing excessive housing costs, in spite of housing allowance plans that have been widely adopted to ease financial hardship.

Notwithstanding a greater awareness of the essential role which private rental housing has to play in the national housing market and an array of policies to promote this sector, its future is clouded in most industrialized countries.<sup>27</sup> Preferential treatment for owner-occupancy and for public and nonprofit housing, on the one hand, and the deterrents of rent regulation, on the other, place the private rental housing sector at a relative disadvantage.

In a majority of cases, a realignment of policies will be necessary if full vigor is to be restored to private rental housing. □

### FOOTNOTES

<sup>1</sup> General Accounting Office, *Rental Housing: A National Problem That Needs Immediate Attention* (Washington, D.C., 1979), p. 1.

<sup>2</sup> Ira S. Lowry, "Rental Housing in the 1970s: Searching for the Crisis", paper presented to the HUD Conference on "The Rental Housing Crisis: Implications for Policy and Research", pp. 3-5.

<sup>3</sup> See the Proceedings of the Conference convened by the Department of Housing and Urban Development on November 14, 1980, on "The Rental Housing Crisis: Implications for Policy and Research" published by the Urban Institute.

<sup>4</sup> The main sources for this study have been national monographs on housing finance prepared for the Seminar on the Financing of Housing convened by the Committee on Housing, Building and Planning of the United Nations Economic Commission for Europe in August 1973, and national monographs on current trends in housing, building and planning prepared biennially for the same committee.

This is an abridged version of a larger study in process of publication.

<sup>5</sup> E. Jay Howenstine, "European experience with rent controls", *Monthly Labor Review*, June 1977, pp. 21-28.

<sup>6</sup> Statistics Canada, *Census of Canada* and Canada Mortgage and Housing Corporation, *Canadian Housing Statistics*, various years.

<sup>7</sup> Ministry of Construction, Japan, *Housing in Japan* (Tokyo, 1980), p. 10.

<sup>8</sup> Department of Environment, United Kingdom, *Housing Policy: Technical Volume* (London, HMSO, 1977), Part III, p. 62—for 1914; *Housing Policy: A Consultative Document* (London, HMSO, 1977), p. 14—for years 1951, 1971 and 1976.

<sup>9</sup> Bureau of Census, *Historical Statistics of the United States: Colonial Times to 1957* (Washington, D.C., Department of Commerce, 1960), Table Series N-139-149—for 1900 and 1940; data for 1950, 1960, 1970 and 1978 derived by subtracting total public housing stock re-

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<sup>10</sup> Simon Whiteley, *Private Rented Housing in New Zealand* (Wellington, National Housing Commission, 1979), p. 12.

<sup>11</sup> Department of National Development, Australia, *The Housing Situation* (Canberra, 1956), p. 17 and Simon Whiteley, *Private Rented Housing in Australia* (London, Department of the Environment, 1979), p. 10.

<sup>12</sup> Lars Ostergaard, *The Privately Rented Sector in Denmark* (Copenhagen, Ministry of Housing, 1978), pp. 8-9 and, Ministry of Housing, Denmark, *Current Trends and Policies in the Field of Housing, Building and Planning* (Copenhagen, 1979), p. 4.

<sup>13</sup> Michael Harloe, "Decline and Fall of Private Renting", *Centre for Environmental Studies Review*, May 1980, p. 31. Harloe adopts a more narrow definition than Hallett, in Graham Hallett, *Housing and Land Policies in West Germany and Britain* (London, MacMillan Press, 1977), p. 18.

<sup>14</sup> 1961 figure—J. McKeon and R. Jennings, *Public Subventions to Housing in Ireland* (Dublin, National Institute for Physical Planning and Construction Research, 1978), p. 46; 1971 figure—Department of Environment, *Current Trends and Policies in the Field of Housing, Building and Planning* (Dublin, 1979), p. 3; 1979 figure—*Ibid.*, (Dublin, 1980), p. 3.

<sup>15</sup> M. Harloe, *op. cit.*, p. 31. Derived from Harloe's estimate of ratios within rental sector.

<sup>16</sup> Supplied by Martti Lujanen, Ministry of Interior, Finland, November 6, 1980.

<sup>17</sup> J. Robert Dumouchel, *European Housing Rehabilitation Experience: A Summary and Analysis* (Washington, D.C., National Association of Housing and Redevelopment Officials, 1978), p. 39.

<sup>18</sup> J. B. Cullingworth, *Essays on Housing Policy: the British Scene*

(London, George Allen and Unwin, 1979), pp. 37-38; Harold L. Wolman, *Housing and Housing Policy in the U.S. and the U.K.* (Lexington, Mass. Heath, 1975), Chap. IV.

<sup>19</sup> David C. Thorns, *Rental Housing—Choices and Constraints* (Wellington, New Zealand, National Housing Commission, 1979), Research Paper 80/3, p. 54.

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<sup>21</sup> United Nations Economic Commission for Europe, *Seminar on Citizen Participation in the Planning, Implementation and Management of Human Settlements* (Geneva, 1980), HBP/SEM.26/1.

<sup>22</sup> United Nations Economic Commission for Europe, *Symposium on Urban Renewal and the Quality of Life* (Geneva, 1978), HBP/SEM.19/R.1.

<sup>23</sup> E. Jay Howenstine, *Housing Costs in the United States and Other Industrialized Countries, 1970-1977* (Washington, D.C., Department of Housing and Urban Development, 1979).

<sup>24</sup> United Nations Economic Commission for Europe, *The Improvement of Housing and Its Immediate Surroundings* (Geneva, 1977), ECE/HBP/21.

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<sup>26</sup> A. Andrzejewski and M. Lujanen, *Major Trends in Housing Policy in ECE Countries* (Geneva, United Nations Economic Commission for Europe, 1980), Chap. IV; Graham Hallett, *Housing and Land Policies in West Germany & Britain* (London, MacMillan Press, 1977), Part I.

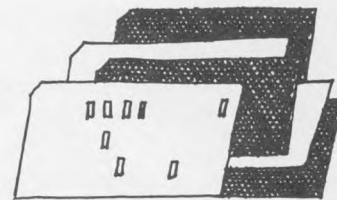
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### A note on communications

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

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## Labor pool for antibias program varies by occupation and job market

DONALD M. ATWATER, RICHARD J. NIEHAUS, and JAMES A. SHERIDAN

Increasing specialization of labor has narrowed the field of potential employees for many of today's highly skilled jobs. Therefore, it may be said that employees often are hired not from the general labor force, but from a specific labor force for a particular job category.

This report deals with the establishment of a comprehensive model of an actual or relevant labor force for certain civilian occupations in the U.S. Department of the Navy. However, the basic method, with some variation, is already in use in many places. Defining the relevant labor force for any category of job can reduce unemployment by more easily matching people to jobs. But in this case it is also being used to understand the demographics of the relevant labor force in question, in order to aid in the formulation of equal employment opportunity policies. This is done by estimating the population distribution of relevant labor markets outside the Department of the Navy, by race, national origin, and sex groups.<sup>1</sup>

The initial step in the process is to specify the key characteristics of jobs. Population data for the relevant geographic areas are then evaluated to identify people available for the work.

The jobs are grouped into occupational and pay level categories. The initial version of the analysis uses major occupational groups that are consistent with the professional, administrative, technical, clerical, and other General Schedule (GS) coding schemes of the U.S. Office of Personnel Management. Because more than 90 percent of the Navy's professional persons in jobs normally

requiring a bachelor's or professional degree for entry are scientists and engineers, the professional category is further divided into two groups: scientists and engineers; and other professionals. The Navy has also established two additional major occupational groups: craftworkers and operatives; and laborers, to cover its 130,000-strong blue-collar civilian work force. Grouping the wage or pay level was done by using five wage bands for each GS (white-collar) and blue-collar major occupational group.

Geographic and educational criteria were determined for each of the major occupational groups, and for grade and level groupings. For the initial development data, the scientist and engineer, other professional, and high GS grade (13 and above) groups were considered to be recruited from a national labor market. The remainder of the white-collar as well as all the blue-collar occupations were considered to be part of local labor markets.

Considerable effort was expended to define precisely the geographic areas of the local labor markets for each Navy installation with more than 250 civilian employees. The specification of geographic area is of particular concern to the Navy because in many cases the installations are at the edges of Standard Metropolitan Statistical Areas (SMSA's) or in isolated locations. For example, Mare Island Naval Shipyard draws its workforce from a combination of counties from the Vallejo-Fairfield-Napa and San Francisco-Oakland SMSA's. A sample of new-hire or accession data for fiscal year 1978 was collected by postal zip code. At least 500 records were collected for each Navy local labor market. For local labor markets where there were significantly fewer than 500 new hires, a percentage—35, 50, or 100 percent, depending on required sample size—of the total Navy work force in the area was included in the data collection. Zip code data on 35,000 of the Navy's 280,000 civilian employees in the United States were eventually collected.

The zip code data were then matched with the counties of the local areas. The matches were reviewed using a road atlas coupled with a Department of Defense map of major installations. Anomalies in the local recruitment data were corrected so that equidistant areas would be accorded equal treatment.<sup>2</sup> For very lo-

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cal jobs such as the clerical and blue-collar occupations, the recruitment area usually dropped off at 15 to 20 miles.

The relevant labor pool consists of qualified and qualifiable applicants who are: (1) workers in comparable jobs; (2) unemployed or part-time workers in comparable jobs; and (3) persons not in the labor force, such as discouraged workers and those who had jobs in the past 5 years with qualifiable skills. It is noteworthy that for some job categories, the inclusion of non-worker data adds as much as 50 percent to the representation of minorities and women.

Measurement of those who are to be included in the relevant labor pool is done using data from: the Public Use Sample of the 1970 Census; the 1976 Department of Health, Education, and Welfare Survey of Income and Education; and the 1978 Current Population Survey. (In 1982, these data sources will be replaced by the 1980 Census.) For those in the civilian labor force, the data on persons can be matched directly to the jobs, using an economic analysis technique called the reservation wage determination, first developed in the 1930's, and recently extended by the Rand Corporation and various universities.

Workers who have earned wages that fall within a defined Navy job wage band are said to be wage-available. For persons who are not currently working, an "expected" or reservation wage is calculated and used to match up with the Navy's offered wage band. The reservation wage is defined as the minimum wage needed to attract a person to begin work in a defined job. This method says that: an employed person will not change jobs if what is perceived as the "expected wage" is less than he or she is earning; and a person without a job will not take one that offers a lower expected wage than what he or she gives up and expends by working.

The accuracy of analysis based on the reservation wage principle requires only that persons act as though they consciously calculate expected wages. The statistical procedure used is a refined version of regression analysis. It begins with the public data files excluding no potential workers. A first regression analysis is made using education, experience, and wage data to estimate market wages. These results in turn are combined with additional data on hours of work, wages, numbers of children, alternative wages, and education, in order to estimate annual hours of work. This second set of results is then compared with Navy data to estimate the value of time for the relevant labor markets by race, national origin, and sex groups. These data are then multiplied by Bureau of the Census population weights to obtain the number of potential workers available for a specific job category.<sup>3</sup>

Other pertinent data such as increased college enroll-

ments of minorities and women are also factored into the calculation of future relevant labor force standards. For example, because engineering school graduates are becoming increasingly represented among women and minorities, larger proportions are factored into the projected 1983 labor supply ratios.

An example of the results of the analysis is provided in table 1. It should be noted that these data are characteristic of the wage bands for Navy civilian jobs and might not apply to organizations with different occupation and wage distributions. In almost all of the projected relevant labor force data, at least some shift toward minorities and women is shown over time. This indicates increased availability for participation in the complete spectrum of Navy jobs (table 1). These data for the external wage bands are equivalent to the wage bands of GS 5-8, 9-12, and 13-15 levels, respectively, representing the entry, middle, and senior career levels. The 1978 data are actual and the 1983 data are projected. During this 5-year period a strong shift toward minorities and women is expected. For example, in the GS 5-8 category the availability of white men will shift on a proportionate basis from 82.7 percent to 74.2 percent as the other relevant external labor markets by race, national origin, and sex categories increase. Similar shifts towards minorities and women can be seen in the projected local labor force data. Clearly, the dynamics of increased opportunities are beginning to be reflected in the composition of the work force.<sup>4</sup>

The use of the relevant labor force data is only part of an affirmative action and equal employment opportunity system. Data on the civilian labor force that are not skill or wage specific are also needed to meet out-of-department reporting requirements of the Equal Employment Opportunity Commission and the Office of Personnel Management. This concern and how it fits into an equal employment opportunity accountability

**Table 1. Demographic composition of the relevant labor market for Navy civilian scientists and engineers, 1978, and projections for 1983**

[In percent]

GS grade	Men					Women				
	Total	White	Black	Hispanic	Other <sup>1</sup>	Total	White	Black	Hispanic	Other <sup>1</sup>
5-8:										
1978 .	91.9	82.7	1.5	1.2	6.5	8.1	6.5	1.2	...	0.6
1983 .	87.0	74.0	2.5	2.0	8.5	13.0	8.0	2.5	1.0	1.5
9-12:										
1978 .	93.8	85.7	1.4	.8	5.9	6.2	4.5	1.1	.3	.3
1983 .	90.2	78.8	2.1	1.9	7.4	9.8	5.5	2.1	1.2	1.0
13-15:										
1978 .	97.9	89.4	2.1	...	6.4	2.1	2.1	...	...	...
1983 .	93.0	81.3	2.8	1.0	7.9	7.0	3.3	1.3	1.4	1.0

<sup>1</sup> Includes Asian and Native American.

system extend well beyond the technical computation of the labor force data in question.

Considerable opportunities remain for improvement of the relevant labor force data. Further occupational detail would be useful. Also, issues such as regional recruitment areas, the relationship of the Federal labor force, and the impact of general economic conditions are all candidates for further study. Further technical work remains in the refinement of the relevant labor force data estimation process. For example, it would be useful to separate the professional occupations into scientists, engineers, mathematicians, accountants, and so forth. Further specificity also appears to be needed for the technician occupations, because the Navy employs a considerable number of engineering technicians who exhibit different out-of-department relevant labor markets by race, national origin, and sex profiles than do management technicians. These extensions to the analysis are underway.

An area of technical concern is consideration of regional recruitment areas. Examples of these would be higher graded engineering technicians, mid-level administrative personnel, and highly skilled craftworkers. Research to better understand the demographic characteristics of these jobs within a regional recruitment area is in process.

The relationship between the non-Federal labor market and the Federal labor market is being studied. This is particularly important for upper-level jobs because these applicants usually come from Federal agencies. The zip code data will be used to obtain the percentages of new hires or accessions which come from the Federal agencies. These percentages will be used with data obtained from the Office of Personnel Management, to obtain supply ratios for the Federal work force. The resulting data will then be combined on a proportionate basis with non-Federal supply ratios to obtain a better estimate of the Navy's real labor force.

General economic considerations which extend beyond the present analysis include the impact of unemployment, inflation, transportation, and housing costs. Studies are being conducted on the projected impact of these factors, on changes in wages of different, non-Navy, relevant labor markets by race, national origin, and sex groups as they relate to Navy jobs.

Mobility patterns are a significant factor on the availability of workers, applying to both the external and internal labor markets. Preliminary internal mobility studies indicate that minorities and women in nonprofessional Navy jobs are less mobile than white men. Further study of this phenomenon and its relationship to external demographic mobility patterns is being conducted. This involves coupling external demographic

models with internal flow models and aids in policy-making. □

#### —FOOTNOTES—

<sup>1</sup> Discussion of the implications for the management of and accountability for equal employment opportunity goals is discussed in chapters 3 and 4 of Richard J. Niehaus, *Computer-Assisted Human Resources Planning* (New York, Wiley Interscience, 1979). Also see Richard J. Niehaus and Denise Nitterhouse, *Planning and Accountability Systems for EEO and Affirmative Action Policy*, Washington, Office of the Assistant Secretary of the Navy for Manpower and Reserve Affairs, Research Report 38, 1980, available from National Technical Information Service, Springfield, Va., Accession No. A093514.

<sup>2</sup> This zip code method has been used for equal employment opportunity labor supply estimation purposes in other studies. For example, see "Using Computer Mapping as an Aid to Data Analysis," *Evidentia*, October 1980, pp. 1-7.

<sup>3</sup> A more comprehensive discussion of the reservation wage methodology can be found in Donald M. Atwater and James A. Sheridan, "Assessing the Availability of Non-workers for Jobs," *Human Resource Planning*, December 1980, pp. 211-18.

<sup>4</sup> The 1979 relevant labor force data for all 65 Department of the Navy local labor markets are published in a more comprehensive version of this report. See Donald M. Atwater, Richard J. Niehaus, and James A. Sheridan, *EEO External Labor Force Analysis*, Washington, Office of the Assistant Secretary of the Navy for Manpower and Reserve Affairs, Research Report 37, 1980, available from National Technical Information Service, Springfield, Va., Accession No. A092242.

## Telephone company pay hikes lead rest of communications industry

Pay levels in the Nation's principal telephone carriers rose 9.3 percent in 1979, according to a Bureau of Labor Statistics annual wage survey<sup>1</sup>. Following a relatively modest 6.2-percent advance during the previous year, the 1979 increase for telephone company employees was considerably larger than corresponding wage gains for international telegraph carriers (4.9 percent) and at the Western Union Telegraph Co. (6.9 percent). Over the last decade, the average annual rate of increase was about 10 percent for telephone carriers and about 9 percent for Western Union and the international telegraph carriers.

The 1979 survey covered about 903,700 employees of major telephone carriers and nearly 16,000 telegraph workers. Combined, they accounted for nine-tenths of the Nation's approximately 1 million workers in telephone and wire-telegraph communications. Bell System carriers employed more than nine-tenths of the surveyed telephone workers; Western Union employees made up seven-tenths of the telegraph workers studied.

Straight-time hourly earnings of telephone carrier employees averaged \$9.21 in December 1979. Individual

earnings of just over four-fifths of the workers fell between \$3.50 and \$11.50 an hour; almost all of the remaining workers earned over \$11.50. Hourly pay for the middle 50 percent of the work force ranged from \$7.20 to \$10.58. Some factors contributing to the wide dispersion of earnings were the great diversity of skills required by the communications industry, differences in pay by carrier and locality, and pay rates which vary within a given occupation by length of employee service.

In December 1979, average hourly earnings among the major occupational categories ranged from \$6.87 for telephone operators to \$13.89 for professional and semi-professional staff. Construction, installation, and maintenance employees made up the largest employment group, with nearly 330,000 workers; their hourly earnings averaged \$9.51. Some other heavily populated job classifications and their hourly averages were: business office and sales employees (\$8.85); building, supplies, and motor vehicle employees (\$8.60); and clerical employees (\$7.83).

Employees of the Bell System carriers held a 23-percent average wage advantage over those of non-Bell carriers—\$9.34 compared with \$7.61 an hour. Similar pay relationships were also found among the various occupational groups studied; hourly averages for non-Bell workers ranged from 70 to 80 percent of those for Bell employees. The non-Bell construction, installation, and maintenance group was the exception, earning almost 90 percent as much as Bell employees. Differences between the worker groups narrowed slightly when weekly earnings were compared, reflecting the longer average workweeks of non-Bell workers in some occupational groups.

Wage rates for the nonmessenger work force of five international telegraph carriers averaged \$10.16 an hour, compared with \$8.38 for similar employees of the Western Union Telegraph Co. in October 1979. Messengers averaged \$5.45 an hour at Western Union and \$3.62 for the international carriers. At the time of the survey, hourly pay levels for construction, installation, and maintenance employees—a heavily populated group—were \$9.36 at Western Union and \$10.38 for the international carriers.

Annual BLS studies of communications, which cover the full spectrum of activities performed by employees in the telephone and telegraph industries, are based on data submitted to the Federal Communications Commission. The data are provided by those telephone carriers which are subject to the full jurisdiction of the commission and have annual operating revenues of more than \$1 million, the Western Union Telegraph Co., and five international telegraph carriers with annu-

al revenues exceeding \$50,000.

A comprehensive report, *Industry Wage Survey: Communications, October–December 1979*, (BLS Bulletin 2100) is for sale by the Superintendent of Documents, Washington, D.C. 20402. □

— FOOTNOTE —

<sup>1</sup> For an account of the 1978 study, see "Communications industry records slow wage gains," *Monthly Labor Review*, November 1980, pp. 37–38.

## Iron and steel foundries cast variations in regional pay

Nationwide pay levels in iron and steel foundries are greatly influenced by the regional distribution of workers, according to a September 1979 occupational wage survey by the Bureau of Labor Statistics. Nationally, production workers in these foundries averaged \$7.16 an hour in straight-time pay, but by region there was considerable variation—from \$5.14 in the Southwest to \$7.99 in the Great Lakes States. Even within the four foundry categories studied separately—malleable iron, gray iron foundries (except pipe and fittings), steel foundries, and gray iron pipe and fittings—such variations persisted between the highest and lowest paying regions.

Table 1 indicates how the major regions in the foundry industries influenced the national averages. The relatively low-paying Southeast, for example, contributed

**Table 1. Straight-time average hourly earnings of production workers in iron and steel foundries, United States and selected regions, September 1979**

Foundries	United States <sup>1</sup>	Middle Atlantic	Southeast	Southwest	Great Lakes	Pacific
All foundries:						
Workers . . .	177,371	21,949	19,260	10,452	96,422	10,143
Mean . . . .	\$7.16	\$7.07	\$5.50	\$5.14	\$7.99	\$6.49
Malleable iron:						
Workers . . .	13,145	2,519	.....	.....	8,794	.....
Mean . . . .	\$7.49	\$6.15	.....	.....	\$8.28	.....
Gray iron, except pipe and fittings:						
Workers . . .	93,068	7,260	8,269	.....	61,039	2,479
Mean . . . .	\$7.32	\$6.36	\$4.94	.....	\$8.13	\$6.86
Steel foundries:						
Workers . . .	52,550	10,943	2,031	3,694	22,375	7,032
Mean . . . .	\$7.01	\$7.85	\$5.68	\$5.46	\$7.37	\$6.45
Gray iron pipe and fittings:						
Workers . . .	15,204	1,063	8,799	.....	.....	.....
Mean . . . .	\$6.00	\$6.26	\$5.99	.....	.....	.....

<sup>1</sup> Includes data for regions in addition to those shown separately.

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



three-fifths of the workers to the pipe and fittings' pay average—the lowest among the four categories; whereas the highest paying Great Lakes region contributed two-thirds of the workers to the averages for malleable iron and gray iron (except pipe and fittings). Pay relationships among regions are influenced, to some extent, by the mix of foundry characteristics within regions. For example, there were 2 union workers for every 1 non-union worker in the Southeast, compared to a 12-to-1 ratio in the Great Lakes States.

Regional pay differences among foundries were generally smaller for skilled occupations than for semiskilled or unskilled occupations—a pattern commonly found in BLS occupational wage surveys. Table 2 shows that for the five skilled maintenance crafts studied separately, the wage spreads between the highest and lowest paying regions were substantially smaller than those recorded for chippers and grinders, core makers, and laborers.

Nationwide, average earnings among the production occupations studied separately covered a broad range—from \$10.17 an hour for metal patternmakers to \$6.25 for general foundry laborers. Chippers and grinders, the largest occupational group studied, averaged \$6.97. Other numerically important occupations and their averages included: core assemblers and finishers, \$7.80; molders on semiautomatic machines, \$7.31; hand core-makers, \$7.17; metal pourers, \$6.99; and shakeout workers, \$6.65. Among the five maintenance crafts studied, averages ranged from \$8.91 an hour for electricians, to \$7.36 an hour for general mechanics. Nationwide occupational pay relationships among foundries generally followed the pattern found in the respective averages for all production workers.

**Table 2. Wage spreads between the highest and lowest paying regions**

Occupation	Percent
Maintenance:	
Machinists .....	44
General mechanics .....	40
Maintenance mechanics .....	40
Carpenters .....	39
Electricians .....	34
Production:	
Laborers, material handling .....	84
Core assemblers and finishers .....	77
Laborers, general foundry .....	74
Metal patternmakers .....	64
Chippers and grinders .....	63
Molders .....	51
Coremakers, hand .....	50

Virtually all production workers were employed in foundries providing paid holidays (typically 9 to 13 days annually); paid vacations (1 to 6 weeks depending upon years of service); and at least part of the cost of life, hospitalization, surgical, and basic medical insurance. Ninety-five percent of the workers also were covered by pension plans.

A comprehensive report on the findings of the survey, Bulletin 2065, is available from the Bureau of Labor Statistics, Washington, D.C. 20212, or any of its regional offices. □

# Major Agreements Expiring Next Month



This list of collective bargaining agreements expiring in October 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.

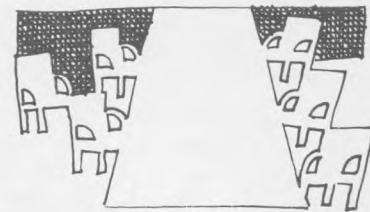
Employer and location	Industry	Union <sup>1</sup>	Number of workers
Acme Markets, Inc., Division #7 (Whippany, N.J.)	Retail trade	Food and Commercial Workers	1,700
American Airlines, Pilots (Interstate) <sup>2</sup>	Air transportation	Airline Pilots Association (Ind.)	4,900
American Standard, Inc., Westinghouse Air Brake Division (Swissvale, Pa.)	Electrical products	Electrical Workers (UE)	1,300
Associated Liquor Wholesalers of Metropolitan New York, Inc. (New York and New Jersey)	Wholesale trade	Teamsters (Ind.)	1,000
Atlas Crankshaft Corp. (Fostoria, Ohio)	Machinery	Auto Workers (Ind.)	1,350
Bendix Corp., Kansas City Division (Missouri)	Ordnance	Machinists	3,200
Borg-Warner Corp (York, Pa.)	Machinery	Auto Workers (Ind.)	2,400
Brown & Sharpe Manufacturing Co. (Rhode Island)	Machinery	Machinists	1,450
Building Operators Labor Relations Inc. (Pennsylvania)	Services	Service Employees	3,200
Elevators Division Employers (New York)	Services	Electrical Workers (IBEW)	1,500
Fedders Corp., Edison Plant (Middlesex County, N.J.)	Machinery	Electrical Workers (IUE)	1,000
Florida Power & Light Co. (Florida)	Utilities	Electrical Workers (IBEW)	4,150
Gates Learjet Corp. (Wichita, Kans.)	Transportation equipment	Machinists	1,700
General Dynamics Corp., Ft. Worth Division (Ft. Worth, Tex.)	Transportation equipment	Office and Professional Employees	1,200
Gulf Coast Bakers Council (Houston Tex.)	Food products	Bakery, Confectionery and Tobacco Workers	1,100
Hawaiian Electric Co., Inc. (Honolulu, Hi.)	Utilities	Electrical Workers (IBEW)	1,000
Hughes Aircraft Co., Tucson Manufacturing Division (Tucson, Ariz.)	Transportation equipment	Machinists	1,600
Infant & Juvenile Manufacturers Association, Inc. (Interstate)	Apparel	Clothing and Textile Workers	3,000
ITT Grinnell Corp., Columbia Plant (Pennsylvania)	Fabricated metal products	Molders	1,150
Jersey Central Power & Light Co., (New Jersey)	Utilities	Electrical Workers (IBEW)	2,450
Kroger Co., Charleston Division (West Virginia)	Retail trade	Food and Commercial Workers	2,800
Kroger Co., Cincinnati-Dayton Marketing Area (Interstate)	Retail trade	Food and Commercial Workers	3,450
Manitowoc Co., Inc., Manitowoc Engineering Co., Division (Manitowoc, Wis.)	Machinery	Machinists	1,050
New York Stock Exchange and 2 others (New York) <sup>3</sup>	Finance	Office and Professional Employees	1,600
Restaurant League of New York, Inc. (New York)	Restaurants	Hotel and Restaurant Employees	1,000
Rockwell International Corp., Energy Systems Group, Rock Flats Plant (Colorado)	Ordnance	Steelworkers	1,500
Sheller-Globe Corp., Hardy Division (Union City, Ind.)	Transportation equipment	Allied Industrial Workers	1,100
Southeastern States Boilermaker Employers (Interstate) <sup>3</sup>	Construction	Boilermakers	2,600
Southwestern Public Service Co. (Interstate)	Utilities	Electrical Workers (IBEW)	1,050
Stackpole Carbon Co. (St. Marys & Kane, Pa.)	Electrical products	Electrical Workers (IUE)	1,450
Standard Brands Paint Co., Inc. (Torrance, Calif.)	Wholesale trade	Food and Commercial Workers	1,200
Timex Corp. (Connecticut)	Instruments	Waterbury Watch Workers (DALU)	1,400
Trans World Airlines (Interstate) <sup>2</sup>	Air transportation	Machinists	12,000
Union Carbide Corp., Chemical and Plastics Operations Division (South Charleston, W. Va.)	Chemicals	Machinists	1,000
Union Carbide Corp., Nuclear Division (Oak Ridge, Tenn.)	Chemicals	Oil, Chemical, and Atomic Workers	2,850
U.S. Airline (Interstate) <sup>2</sup>	Air transportation	Machinists	1,500
United Airlines (Interstate) <sup>2</sup>	Air transportation	Machinists	18,600
Washable Suits, Novelties and Sportswear Association (New York, N.Y.)	Apparel	Clothing and Textile Workers	1,600
Westinghouse Air Brake Co., Division of American Standard (Wilmerding, Pa.)	Transportation equipment	Electrical Workers (UE)	2,900

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

<sup>3</sup> Information is from newspaper reports.

<sup>2</sup> Industry area (group of companies signing same contract).

# Developments in Industrial Relations



## Postal settlement

Bargainers for 3 of the 4 major postal workers unions settled with the U.S. Postal Service in late July, averting the possibility of a strike that would have hampered delivery of the 360 million pieces of mail that move through the system each day. The 3-year accord with the two largest unions, the American Postal Workers Union (APWU) and the National Association of Letter Carriers (NALC) actually came 16 hours after the termination date of the prior contract, but the leaders of the two unions had held off calling a walkout because of increasing progress in the talks, which had seemed to be at an impasse just 2 days earlier. The Postal Reorganization Act of 1970 prohibits strikes.

The National Rural Letter Carriers' Association accepted essentially the same terms for the 60,000 workers it represents. The fourth organization involved in the bargaining, the Mail Handlers division of the Laborers' International Union, elected to resolve its economic differences with the Postal Service under the factfinding and arbitration procedures of the Postal Reorganization Act. The Mail Handlers represents 40,000 workers. Unlike 1978, when all four unions bargained jointly with the Postal Service, friction between the two larger and the two smaller unions led to separate negotiations.

The APWU-NALC settlement provided for a \$300 increase in annual salaries in July of each of the three years. In addition, the 500,000 workers involved were to receive a \$150 one-time "contract signing bonus" if they ratified the terms within 45 days after the settlement date. They also will receive annual cash payments of \$350 plus possible payments under a new productivity plan.

Employees will continue to receive semiannual cost-of-living adjustments in annual pay of \$20.80 for each 0.4-point increase in the BLS Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100). The \$3,619 in cost-of-living increases accrued under the prior contract will be incorporated into basic

pay rates in October 1984, 3 months after the termination date of the new agreements. However, employees who are now eligible for retirement or who will become eligible prior to July 21, 1987, will have the option of having the \$3,619 incorporated into basic pay in November 1981. This would increase their entitlement under the pension plan, but it also means that their contributions to the plan will be increased by \$253 a year (7 percent of \$3,619).

## Auto industry, UAW union—update

Recent attention focused on the auto industry and the United Auto Workers union. The industry announced a profitable second quarter; Chrysler Corp. announced a new profit-sharing plan; the UAW union announced new strategies to counter the inroads of foreign auto companies; UAW's reaffiliation with the AFL-CIO became official; and UAW President Douglas A. Fraser reaffirmed his intention to retire in 1983.

The new profit-sharing plan negotiated by Chrysler and the UAW was announced the day after the company reported a \$11.6-million second-quarter profit, its first profit since the fourth quarter of 1978. The three-part plan is subject to approval by the Chrysler Loan Guarantee Board. Under the first part, \$50 will be given to each of 70,000 UAW members and 4,000 members of other unions that agreed to the plan. The second part calls for a drawing to distribute 3,004 "purchase certificates" for Chrysler products among the employees. The products include four Imperial automobiles; 1,000 Snow Runners (a type of motorbike on skis); 1,000 outboard motors; and 1,000 certificates worth either \$500 or \$1,000 toward the purchase of a Chrysler automobile or truck, depending on the type. The third part provides that in any year that Chrysler attains annual earnings equal to 10 percent of its net worth, 15 percent of the excess amount will be distributed to the workers in the form of either Chrysler stock or "purchase certificates" equal to 150 percent of the value of the stock. The January 1981 settlement between Chrysler and the Auto Workers (and other unions) called for adoption of a profit-sharing plan in return for the wage concessions made by the workers. (See *Monthly Labor Review*, March 1980, p. 56.)

Chrysler's 94,000 U.S. and Canadian workers will re-

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ceive 5,987,400 shares of company stock under provisions of a stock-ownership plan established in January 1981 under provisions of the Chrysler Corporation Loan Guarantee Act of 1979. Annual distributions under this 4-year plan will partly offset the loss to employees resulting from wage concessions they made in January 1980. (See *Monthly Labor Review*, March 1980, p. 56.) According to the UAW, the 1981 distribution to individual employees will amount to 63 shares valued at \$441. Employees receive either the stock or its cash value when they leave Chrysler.

The United Auto Workers announced the start of a drive for legislation to force foreign and domestic auto producers with large U.S. sales to build those vehicles in the United States. The drive will be aimed primarily at Japanese manufacturers holding a 20-percent share of the U.S. market, and the at U.S. firms planning to transfer some of their operations to overseas plants.

In general, the union's proposal would require companies selling more than 200,000 units a year in North America to use at least 75 percent North American labor and parts in manufacturing those units. Companies with North American sales of 500,000 units would be held to a 90-percent requirement.

Representatives of General Motors employees in 18 countries adopted bargaining goals to counter the company's increasing worldwide integration of production. The conference, sponsored by the International Metalworkers' Foundation, resulted in the adoption of aims including "substantial" reductions in worktime, less overtime work, earlier retirements, uniform worldwide health and safety codes, and elevation of wages and benefits "to the highest level in the GM empire," usually considered to be the level in the United States. If attained, these goals would severely hamper GM's ability to benefit by shifting production abroad. In response to recent GM calls for increased cooperation from labor, the conference outlined compromises which should be made by the company, including an end to company opposition to union organizing; retraining for workers idled by technological changes and production shifts; a role in management, if unions so desire; and certain financial disclosures to labor.

The Auto Workers officially rejoined the AFL-CIO on July 1, after the federation's executive council voted unanimously to issue a certificate of affiliation to the union. Negotiations on reaffiliation had started after AFL-CIO President Lane Kirkland led off his first term of office by calling for the UAW and other major independent unions to join or rejoin the federation. (See *Monthly Labor Review*, July 1981, p. 46.)

UAW President Douglas Fraser reaffirmed his decision to retire when his current 3-year term of office expires at the union's 1983 convention. Other leaders of the union, led by Secretary-Treasurer Raymond E. Majerus,

had urged Fraser to seek another term of office, saying that the union's rule against an officer seeking a new term after attaining age 65 should be changed. Majerus said, "The union is in the most difficult period in its history, and we need the experience and expertise of everybody. Doug has more of that than anybody else." Fraser, who will be 65 in December 1982, said he had decided not to seek another term because "all institutions need the vitality that new blood can bring. This is particularly true at the top level of unions . . . ." Despite Fraser's announcement, the union's executive board was still discussing the possibility of modifying the age rule to permit a postponement of retirement in cases when the change of leadership would occur during a critical period.

### Longshore accord

About 11,000 dock workers were covered by a 3-year accord between the Pacific Maritime Association and the International Longshoremen's and Warehousemen's Union. The agreement increased the basic (straight time) pay rate by \$1.30 an hour on July 4, 1981, and July 3, 1982, and by \$1.25 on July 2, 1983. After the 1983 increase, the basic rate will be \$14.77 an hour. (Most West Coast longshore workers are paid 6 hours a day at the straight-time rate plus 2 hours overtime at time- and one-half rates.)

Other provisions included the adoption as paid holidays the birthdays' of Harry Bridges and Martin Luther King, Jr., bringing the total paid holidays to 13 a year.

Pensions for employees retiring during the contract term were increased to \$26 (from \$22) a month for each year of service up to 30 years (formerly 25 year). Monthly pensions for current retirees were increased by up to \$25 in each contract year. The employer obligation to the pay guarantee plan was increased to maximums of \$16.2 million in the first contract year and about \$12.8 million in each of the next two years, compared with a total of about \$29 million during the preceding 3-year contract.

The contract also included provisions aimed at reversing the flow of container cargo work from the docks (where it is handled by ILWU members) to non-ILWU facilities. The major new provisions was the establishment of \$3 million a year employer funding to "encourage the preservation, growth and increase of . . . container stuffing and unstuffing facilities."

### Maritime settlements

More than 45,000 crew members of deep sea vessels were covered by 3-year contracts negotiated by the National Maritime Union, the Seafarers, and the Marine Engineers. The contracts provided for a 7.5-percent "set" wage increase in each year and up to three semi-annual cost-of-living pay adjustments, beginning in De-

ember 1982. Improvements in pension plans and in health and dental insurance varied by union. The contracts were negotiated with various employer associations and independent ship owners.

### **Strike over 'comparable worth' ends**

What was perhaps the first strike in U.S. history over the "comparable worth" approach to ending unwarranted pay disparities between men and women has ended. A 2-year agreement between 2,000 members of State, County, and Municipal Employees Local 101 and the city of San Jose, Calif., provided for a \$1.5-million fund to be used to narrow such unwarranted pay differences. Also, employees are to receive a 7.5-percent salary increase effective immediately, and an 8-percent increase in 1982.

The comparable worth theory contends that "traditional" female jobs generally pay less than "traditional" male jobs, even if the jobs are of comparable worth to society. The controversy was accelerated when a city-initiated study indicated that the city's female employees were generally paid less than the male employees holding jobs of comparable worth. The comparisons were made by assigning "grade points" to jobs, based on the "knowhow, accountability, problem-solving, and working conditions" involved.

San Jose Mayor Janet Gray Hayes backed the special pay adjustments for women, calling comparable worth "the new civil rights issue . . . the woman's issue of the 1980's." Hayes said that the week-long strike had started because the union wanted the city council to make spending commitments extending beyond the council's term of office. The union had been seeking a total commitment of \$3.2 million for pay adjustments over a 4-year period.

### **Partial closing not a bargaining item**

In a 7 to 2 decision, the Supreme Court held that an employer is not required to bargain with employees over a decision to close part of its operations. (In 1965, the court made a similar ruling on the closing of an entire operation.) The ruling upset a National Labor Relations Board policy that considered partial closing decisions one of the "terms and conditions of employment" on which management is required to bargain.

Writing for the majority, Justice Harry A. Blackmun said that when Congress approved the National Labor Relations Act, it "had no expectation that the elected union representatives would become an equal partner in the running of the business enterprise in which the union's members are employed." He explained that "management may have great need for speed, flexibility and secrecy in meeting business opportunities and exigencies" and that giving unions the right to bargain on partial closings would "thwart management's intentions."

The ruling does not apply to other decisions, such as selling or moving a plant, and Federal law prohibits an employer from closing a facility simply to gain advantage over a union. Also, employers must continue to bargain on benefits and other types of protection for employees affected by partial closings. The court suggested that unions protect their members' interests by negotiating collective bargaining agreement provisions requiring employers to bargain on partial closings.

The case arose in 1977 when the union asserted that First National Maintenance Corp. was required to bargain on ending its housekeeping and maintenance services at a Brooklyn, N.Y., nursing home. National Maintenance contended that the services were not profitable.

### **Fund trustee not bargaining agent, high court says**

The Supreme Court ruled 8-to-1 that unions can strike to force employers to join established multiemployer benefit funds. The case arose when Amax Coal Co. opened a new mine in Wyoming and refused to pay into the national multiemployer pension and health benefits funds maintained by the United Mine Workers union and coal producers. The union's right to strike over the issue was upheld by the National Labor Relations Board. But, the Third Circuit Court of Appeals reversed the decision, agreeing with Amax's contention that it was not required to join the fund because it had not participated in the selection of the management-appointed fund trustee. Amax claimed that the trustee was a collective bargaining agent, and under the Taft-Hartley Act, a union can not coerce an employer to accept a particular bargaining representative.

Supreme Court Justice Potter Stewart, writing for the majority, said that the trustee, although selected by management, was not a collective bargaining agent. He said a trustee is a fiduciary "whose duty to the trust beneficiaries must overcome any loyalty to the interest of the party that appointed him. Thus, the statutes defining the duties of a management-approved trustee make it virtually self-evident that welfare fund trustees are not 'representatives' for the purpose of collective bargaining or the adjustment of grievances" under law.

If the Court had ruled that the strike was illegal, employers could have refused to participate in or withdrawn from multiemployer benefit trusts. Such trusts are common in mining, apparel, trucking, construction, and retail trade, and reportedly have total assets of \$23 billion, covering 8.8 million workers.

### **OSHA revokes 'walkaround pay' rule**

The Occupational Safety and Health Administration revoked its "walkaround pay" rule, which required employers to compensate employees for time spent accompanying OSHA compliance officers during their inspec-

tions. Assistant Secretary of Labor Thorne G. Aucher said the rule was not needed to carry out OSHA's functions and that "the issue of walkaround pay is best left to voluntary arrangements between employers and employees."

The action drew criticism from AFL-CIO Safety Director George H. R. Taylor, who contended that the revocation could lead to the exclusion of workers from the inspection process. He said that this would be particularly true of nonunion workers because they have no contractual protection on job safety matters.

### **Detroit municipal workers agree to wage freeze**

Serious financial problems facing the City of Detroit were eased when unions representing 20,000 municipal workers agreed to a wage freeze. Other aspects of Detroit Mayor Coleman A. Young's recovery plan were set when voters approved an increase in the city's income tax and the State Legislature authorized the city to sell \$125 million in bonds.

The first union to settle was the Detroit Police Officers Association, which represents 2,900 officers of patrol rank. Under the new contract, officers will not receive a salary increase before its June 30, 1983, termination date. In return for the pay freeze, the city agreed to a 1-year ban on layoffs and a pension change permitting officers to retire at any age after 25 years of service (previously, they also had to be age 55). The city also agreed to suspend its campaign for repeal or modification of a State law which gives municipal police and fire fighters the right to binding arbitration of contract disputes. Mayor Young had claimed that the law discouraged meaningful bargaining and favored the unions. During the suspension period, the parties will work out a new proposal to present to the State Legislature.

After the initial settlement, about 30 other unions agreed to a wage freeze and similar pension improvements in return for guarantees against layoffs. The largest single unit was Council 25 of the State, County, and Municipal Employees, representing about 9,000 employees.

### **Judge finds airline bias against men**

A Federal district judge ruled that Southwest Airlines engaged in sex discrimination when it refused to hire Gregory R. Wilson and other men for flight attendant and ticket agent jobs. The airline, which operates out of Dallas' Love Field, had contended that an infusion of men into these jobs would cut profits by reduc-

ing the effectiveness of its promotional campaigns, which center on the sexual attractiveness of its flight attendants and ticket agents.

In his decision, Judge Patrick E. Higgenbotham conceded Southwest's point that a "feminized image . . . continues to play an important role" in its success but that "Southwest is not in a business where vicarious sex entertainment is the primary service provided." He concluded, "The ability of the airline to perform its primary business function, the transportation of passengers, would not be jeopardized by hiring males."

According to the attorney for the plaintiff, the ruling means that as many as 400 men could win jobs and back pay from Southwest if they can prove that they had been rejected simply because of their sex.

### **Sears, EEOC settle out of court**

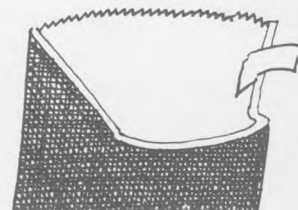
Sears, Roebuck & Co. and the Federal Government announced an out-of-court settlement of a series of racial discrimination charges, ending one phase of a conflict between the Equal Employment Opportunity Commission and the Nation's largest retailer. Despite this accord, the company is still charged with employment discrimination on the basis of sex.

The dispute over Sears' employment practices began in 1973, but did not reach the legal arena until October 1979, when the EEOC charged the company with race discrimination at its facilities in Atlanta, Ga., Memphis, Tenn., Montgomery, Ala., and Brooklyn and White Plains, N.Y. EEOC filed separate suits in Federal District Courts in the four areas and, at the same time, filed a companywide sex discrimination suit in Federal District Court in Chicago.

Sears responded by filing a class action suit charging that equal employment opportunity laws and regulations were impossible to comply with because the Government's own policies had resulted in an unbalanced national work force dominated by white men. The suit was dismissed by Federal District Judge June L. Green, who held that the allegations were "not sufficiently concrete." (See *Monthly Labor Review*, July 1979, p. 46.)

Both parties hailed the out-of-court settlement of the racial discrimination charge, which calls for Sears facility managers to make greater efforts to attract minority job applicants and to prepare quarterly reports for the company's group managers showing the number of job applicants and the number of those hired from various minority groups. These records will be submitted to the EEOC. □

# Book Reviews



## Child care policies here and abroad

*Child Care, Family Benefits, and Working Parents: A Study of Comparative Policy.* By Sheila B. Kamerman and Alfred J. Kahn. New York, Columbia University Press, 1981. 263 pp. \$25.

This book examines social policies and programs which support labor force participation of mothers with young children. The review covers six countries: the United States; three Western European nations, Sweden, West Germany, and France; and two Eastern bloc nations, Hungary and East Germany. This study, by Sheila B. Kamerman and Alfred J. Kahn, contains data and figures on the labor force participation of women with children 6 years or younger, and the variation and value of government programs which support mothers of young children. This assistance includes: paid maternity leave and job protection, income and nonincome tested family allowance and subsidy programs, and government programs and policies for child care and early education. The data are dated, usually covering the period 1970-77. Moreover, it takes an extraordinary discipline to pull the figures into context. Data on parallel programs and issues are scattered into different chapters.

The authors describe how governmental child care and family support policies interact with female labor force participation and childbearing behavior, but they miss some major variables and themes. For instance, the study virtually ignores the impact of career opportunities and earnings potential of workers, particularly women, on training and education decisions, labor force activity (full or part time), childbearing (timing and number), and child care patterns. East Germany is held up as an enlightened example because it has the largest labor force participation of women with young children, combined with the highest level of government-supported child care centers for working mothers. It also has one of the lowest birth rates. Not discussed is the possibility that low birth rates and full labor force participation rates may result from lower per capita living standards (compared with industrialized western nations) and political pressure for able-bodied adults to work full time.

West Germany shares the cultural and lingual heritages of its neighbor. However, labor force manage-

ment, living standards, and early child care arrangements are dramatically different. Overall living standards are significantly better.

The United States' policies, or nonpolicies, regarding Federal provision for maternity protection of working women and the operation, regulation, and licensing of child care, receive a great deal of explicit and implicit criticism. The study ignores the expanding career opportunities for American women, the changing patterns of their labor force participation, and timing of first births to accommodate career development. Perhaps if the authors' data were more current, these trends would be clearer. Also not considered is the possibility that the United States' relatively high birth rate and comparatively high labor force participation of women with children under 6 years might reflect earning power and living standards which enables individual purchase of preferred child care arrangements without Federal intervention. The predominant child care arrangement for middle class working mothers in the United States is in-home or out-of-home family care for infants to age 30 months. For children 2½ to 6 years of age, the norm is family day care combined with part-day nursery school or kindergarten. Family care is arranged informally by parents, mostly without benefit of licensing or regulation. The authors infer that this "market" solution would by definition be inferior to state operated or regulated care.

The authors have very distinct points of view regarding what is "best" for women and children. Clearly, they suggest that mothers who stay at home to care for young children court isolation, unhappiness, and the prolongation of female inequality. Working in the paid labor market is, in their opinion, a better way of life. They clearly approve of direct governmental intervention in the provision of child care. They give group care higher ratings than family day care. They feel that official licensing and regulation of family day care is necessary. Their support of family day care at best damns with faint praise. One of their "arguments" in favor of family day care is that "it is more familiar to lower-class users since it is more similar to their home culture and physical setting." Is one to conclude from such an "argument" that upper-class home culture and physical setting resembles a day care center?

On balance, this study is useful for attentive labor market and child care policy scholars with an interest in

developments in other nations. But readers need to be sensitive to value judgments and biases which are often presented as facts. Finally, readers must be willing to put up with a writing style replete with run-on sentences and jargon. *Child Care, Family Benefits, and Working Parents* is definitely not for the casual reader.

—KAREN CLEARY ALDERMAN  
Labor Economist  
Coauthor of  
*Child Care and ABCs, Too*

tion to the ever more complex problem area of public policy in securing the essentials in the common contingencies. Somehow, the author has a knack for detecting new and unexplored components on the ever evolving scene which lends a refreshing note to his treatment even of those subjects on which originality is hard to come by.

—GEORGE F. ROHRlich  
Professor of Economics  
and Social Policy, Emeritus  
Temple University

### An overview of social insurance

*Social Security in a Changing Society: An Introduction to Programs, Concepts, and Issues.* By Yung-Ping Chen. Bryn Mawr, Pa., McCahan Foundation, 1980. 180 pp. \$6.

This excellent volume delivers exactly what it promises, and does it well.

In six clear and concise chapters, each with supportive tables and charts and with a list of pertinent references, Yung-Ping Chen provides an overview of the evolution, philosophy, current makeup, and the actual role of our social security programs in the social economy of the United States.

The emphasis in this book rests on the Old-Age, Survivors, and Disability Insurance (OASDI) program—its coverage, scope, and financing. A separate chapter deals with medicare and health care financing, including coverage, and cost and financing aspects in the foreseeable future. Two important long-term trends receive special attention: the graying of America and its changing family structure. Both have implications that are of crucial importance, first with regard to the changing nature of what constitutes adequate protection and, second, because of the foreseeable effect on underwriting requirements.

Other timely issues pertaining to OASDI are singled out for discussion: the role that special programs for public workers play in the perspective of the long-standing aim of universal coverage; the possible inclusion under OASDI of Federal civilian employees, and the rising tide of terminations of coverage under the OASDI system of State employees.

The final chapter is devoted to unemployment insurance (including extended benefit provisions) and to a broad-gaged, schematic presentation of State workers' compensation laws in conjunction with employer liability rules under the common law. With regard to these two programs, especially workers' compensation, this is really just an overview—albeit of the essentials.

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## NOTES ON CURRENT LABOR STATISTICS

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

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

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

Seasonally adjusted labor force data in tables 2-7 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 ( $\$3/150 \times 100 = \$2$ ). The resulting values are described as "real," "constant," or "1967" dollars.

**Availability of information.** Data that supplement the tables in this section are published by the Bureau of Labor Statistics in a variety of sources. Press releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule given below. The *BLS Handbook of Labor Statistics, Bulletin 2070*, provides more detailed data and greater historical coverage for most of the statistical series presented in the *Monthly Labor Review*. More information from the household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau, and in two comprehensive data books issued annually—*Employment and Earnings, United States and Employment and Earnings, States and Areas*. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

### Symbols

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

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

n.e.c. = not elsewhere classified.

### Schedule of release dates for major BLS statistical series

Title and frequency (monthly except where indicated)	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation .....	September 4	August	October 2	September	1-11
Producer Price Index .....	September 4	August	October 9	September	26-30
Consumer Price Index .....	September 24	August	October 23	September	22-25
Real earnings .....	September 24	August	October 23	September	14-20
Labor turnover in manufacturing .....	September 30	August	October 29	September	12-13
Work stoppages .....	September 30	August	October 29	September	37
Productivity and costs:					
Nonfarm business and manufacturing .....	.....	.....	October 28	3d quarter	31-34
Major collective bargaining settlements .....	.....	.....	October 30	1st 9 months	35-36

## EMPLOYMENT DATA FROM THE HOUSEHOLD SURVEY

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 60,000 households beginning in May 1981, selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

### Definitions

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

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

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

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

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

### Notes on the data

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

Data in tables 2-7 are seasonally adjusted, based on the seasonal experience through December 1980.

Year	Total non-institutional population	Total labor force		Total	Civilian labor force					Not in labor force
		Number	Percent of population		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	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	
<b>TOTAL</b>																
Total noninstitutional population <sup>1</sup>	163,620	166,246	166,391	166,578	166,789	167,005	167,201	167,396	167,585	167,747	167,902	168,071	168,272	168,480	168,685	
Total labor force	104,996	106,821	107,119	107,059	107,101	107,288	107,404	107,668	107,802	107,802	108,305	108,851	109,533	108,307	108,603	
Civilian noninstitutional population <sup>1</sup>	161,532	164,143	164,293	164,464	164,667	164,884	165,082	165,272	165,460	165,627	165,774	165,941	166,145	166,349	166,546	
Civilian labor force	102,908	104,719	105,020	104,945	104,980	105,167	105,285	105,067	105,543	105,681	106,177	106,722	107,406	106,176	106,464	
Employed	96,945	97,270	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392	98,962	
Agriculture	3,297	3,310	3,267	3,210	3,399	3,319	3,340	3,394	3,403	3,281	3,276	3,463	3,353	3,265	3,258	
Nonagricultural industries	93,648	93,960	93,732	93,793	93,781	93,887	93,999	93,888	94,294	94,646	95,136	95,513	95,882	95,127	95,704	
Unemployed	5,963	7,448	8,021	7,942	7,800	7,961	7,946	7,785	7,847	7,754	7,764	7,746	8,171	7,784	7,502	
Unemployment rate	5.8	7.1	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3	7.0	
Not in labor force	58,623	59,425	59,273	59,519	59,687	59,717	59,797	60,205	59,917	59,946	59,598	59,219	58,739	60,173	60,082	
<b>Men, 20 years and over</b>																
Civilian noninstitutional population <sup>1</sup>	68,293	69,607	69,664	69,756	69,864	69,987	70,095	70,198	70,320	70,413	70,481	70,574	70,687	70,788	70,894	
Civilian labor force	54,486	55,234	55,344	55,403	55,475	55,495	55,539	55,470	55,443	55,445	55,816	56,013	56,395	55,876	55,957	
Employed	52,264	51,972	51,714	51,791	51,823	51,963	52,007	52,045	52,091	52,134	52,511	52,750	52,849	52,451	52,811	
Agriculture	2,350	2,355	2,306	2,301	2,389	2,351	2,372	2,331	2,378	2,289	2,296	2,409	2,349	2,320	2,329	
Nonagricultural industries	49,913	49,617	49,408	49,490	49,434	49,612	49,635	49,714	49,713	49,844	50,215	50,342	50,500	50,131	50,482	
Unemployed	2,223	3,261	3,630	3,612	3,652	3,532	3,532	3,425	3,352	3,312	3,305	3,262	3,546	3,425	3,147	
Unemployment rate	4.1	5.9	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1	5.6	
Not in labor force	13,807	14,373	14,320	14,353	14,389	14,492	14,556	14,728	14,877	14,968	14,665	14,561	14,292	14,912	14,937	
<b>Women, 20 years and over</b>																
Civilian noninstitutional population <sup>1</sup>	76,860	78,295	78,360	78,473	78,598	78,723	78,842	78,959	79,071	79,175	79,271	79,377	79,498	79,617	79,739	
Civilian labor force	38,910	40,243	40,383	40,523	40,317	40,486	40,629	40,570	40,942	41,090	41,293	41,481	41,852	41,743	41,879	
Employed	36,698	37,696	37,728	37,890	37,804	37,754	37,909	37,820	38,191	38,410	38,567	38,760	39,014	39,011	39,082	
Agriculture	591	575	564	555	592	576	574	665	621	615	606	603	583	562	575	
Nonagricultural industries	36,107	37,120	37,164	37,335	37,212	37,178	37,335	37,155	37,570	37,794	37,961	38,157	38,431	38,449	38,507	
Unemployed	2,213	2,547	2,655	2,633	2,513	2,732	2,720	2,750	2,680	2,680	2,725	2,721	2,838	2,731	2,797	
Unemployment rate	5.7	6.3	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5	6.7	
Not in labor force	37,949	38,052	37,977	37,950	38,281	38,237	38,213	38,389	38,129	38,085	37,978	37,896	37,646	37,874	37,860	
<b>Both sexes, 16 to 19 years</b>																
Civilian noninstitutional population <sup>1</sup>	16,379	16,242	16,268	16,235	16,205	16,174	16,145	16,114	16,069	16,039	16,022	15,991	15,961	15,944	15,913	
Civilian labor force	9,512	9,242	9,293	9,019	9,188	9,186	9,117	9,027	9,158	9,146	9,068	9,228	9,159	8,558	8,628	
Employed	7,984	7,603	7,557	7,322	7,553	7,489	7,423	7,417	7,414	7,384	7,334	7,465	7,372	6,930	7,069	
Agriculture	356	380	397	354	418	392	394	398	404	376	374	451	421	383	354	
Nonagricultural industries	7,628	7,223	7,160	6,968	7,135	7,097	7,029	7,019	7,010	7,008	6,960	7,014	6,951	6,547	6,715	
Unemployed	1,528	1,640	1,736	1,697	1,635	1,697	1,694	1,610	1,744	1,762	1,734	1,763	1,787	1,628	1,559	
Unemployment rate	16.1	17.7	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1	
Not in labor force	6,867	7,000	6,975	7,216	7,017	6,988	7,028	7,087	6,911	6,893	6,954	6,763	6,802	7,386	7,285	
<b>White</b>																
Civilian noninstitutional population <sup>1</sup>	141,614	143,657	143,770	143,900	144,051	144,211	144,359	144,500	144,651	144,774	144,882	145,006	145,160	145,316	145,464	
Civilian labor force	90,602	92,171	92,335	92,288	92,317	92,516	92,562	92,383	92,832	93,035	93,313	93,860	94,506	93,464	93,767	
Employed	86,025	86,380	86,075	86,067	86,307	86,371	86,409	86,377	86,620	86,940	87,291	87,791	88,083	87,500	87,979	
Unemployed	4,577	5,790	6,260	6,221	6,010	6,145	6,153	6,006	6,213	6,095	6,022	6,069	6,422	5,964	5,787	
Unemployment rate	5.1	6.3	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4	6.2	
Not in labor force	51,011	51,486	51,435	51,612	51,734	51,695	51,797	52,117	51,819	51,739	51,569	51,146	50,654	51,852	51,697	
<b>Black and other</b>																
Civilian noninstitutional population <sup>1</sup>	19,918	20,486	20,523	20,564	20,617	20,673	20,723	20,771	20,809	20,853	20,892	20,936	20,985	21,033	21,081	
Civilian labor force	12,306	12,548	12,661	12,630	12,677	12,686	12,706	12,668	12,684	12,598	12,765	12,899	12,895	12,741	12,658	
Employed	10,920	10,890	10,902	10,902	10,894	10,884	10,922	10,895	11,051	10,942	11,020	11,193	11,138	10,928	10,939	
Unemployed	1,386	1,658	1,759	1,728	1,783	1,802	1,784	1,773	1,634	1,655	1,745	1,706	1,757	1,813	1,719	
Unemployment rate	11.3	13.2	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2	13.6	
Not in labor force	7,612	7,938	7,862	7,934	7,940	7,987	8,017	8,103	8,125	8,255	8,127	8,037	8,090	8,292	8,423	

<sup>1</sup>As in table 1, population figures are not seasonally adjusted.

### 3. Selected employment indicators, seasonally adjusted

[Numbers in thousands]

Selected categories	Annual average		1980						1981						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
<b>CHARACTERISTIC</b>															
Total employed, 16 years and over .....	96,945	97,270	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392	98,962
Men .....	56,499	55,988	55,678	55,589	55,754	55,881	55,897	55,920	56,012	56,045	56,383	56,688	56,718	56,026	56,494
Women .....	40,446	41,283	41,321	41,414	41,426	41,325	41,442	41,362	41,684	41,882	42,029	42,288	42,517	42,366	42,467
Married men, spouse present .....	39,090	38,302	38,049	37,987	38,027	38,142	38,167	38,231	38,182	38,113	38,365	38,510	38,498	38,216	38,283
Married women, spouse present .....	22,724	23,097	23,118	23,126	23,027	22,993	23,065	23,063	23,352	23,356	23,513	23,529	23,831	23,763	23,820
<b>OCCUPATION</b>															
White-collar workers .....	49,342	50,809	51,023	51,307	51,074	51,101	51,148	51,065	51,594	51,698	51,746	51,801	51,967	51,959	51,857
Professional and technical .....	15,050	15,613	15,717	15,751	15,540	15,780	15,863	15,810	15,965	15,813	15,827	15,754	15,688	16,057	15,966
Managers and administrators, except farm .....	10,516	10,919	10,999	11,109	11,007	10,979	11,016	11,009	11,363	11,488	11,565	11,444	11,260	11,174	11,418
Salesworkers .....	6,163	6,172	6,130	6,140	6,316	6,277	6,155	6,175	6,265	6,271	6,220	6,145	6,461	6,440	6,220
Clerical workers .....	17,613	18,105	18,177	18,307	18,211	18,065	18,114	18,071	18,001	18,125	18,135	18,457	18,557	18,288	18,254
Blue-collar workers .....	32,066	30,800	30,276	30,232	30,436	30,521	30,550	30,373	30,338	30,446	30,594	31,156	31,373	30,922	31,038
Craft and kindred workers .....	12,880	12,529	12,403	12,346	12,490	12,485	12,424	12,337	12,306	12,386	12,605	12,624	12,743	12,482	12,575
Operatives, except transport .....	10,909	10,346	10,189	10,147	10,202	10,210	10,247	10,194	10,331	10,390	10,189	10,524	10,609	10,550	10,567
Transport equipment operatives .....	3,612	3,468	3,354	3,478	3,434	3,443	3,429	3,402	3,322	3,361	3,363	3,411	3,390	3,425	3,481
Nonfarm laborers .....	4,665	4,456	4,330	4,261	4,310	4,383	4,450	4,440	4,380	4,309	4,437	4,596	4,632	4,466	4,415
Service workers .....	12,834	12,958	13,017	12,928	12,943	12,891	12,888	12,982	12,946	13,070	13,279	13,255	13,213	12,930	13,284
Farmworkers .....	2,703	2,704	2,694	2,620	2,757	2,735	2,729	2,804	2,737	2,662	2,679	2,834	2,707	2,648	2,689
<b>MAJOR INDUSTRY AND CLASS OF WORKER</b>															
Agriculture:															
Wage-and-salary workers .....	1,413	1,384	1,360	1,282	1,417	1,363	1,417	1,411	1,465	1,336	1,338	1,524	1,464	1,377	1,457
Self-employed workers .....	1,580	1,628	1,631	1,640	1,688	1,640	1,612	1,655	1,615	1,610	1,615	1,648	1,644	1,657	1,568
Unpaid family workers .....	304	297	295	280	309	325	324	305	284	325	312	290	231	258	235
Nonagricultural industries:															
Wage-and-salary workers .....	86,540	86,706	86,432	86,490	86,395	86,587	86,643	86,513	87,125	87,236	87,870	88,195	88,877	87,734	88,291
Government .....	15,369	15,624	15,718	15,531	15,575	15,597	15,651	15,653	15,738	15,589	15,685	15,628	15,512	15,460	15,349
Private industries .....	71,171	71,081	70,714	70,959	70,820	70,990	70,992	70,860	71,387	71,647	72,185	72,567	73,365	72,274	72,942
Private households .....	1,240	1,166	1,230	1,196	1,125	1,144	1,148	1,110	1,197	1,176	1,235	1,241	1,164	1,146	1,211
Other industries .....	69,931	69,915	69,484	69,763	69,695	69,846	69,844	69,750	70,190	70,471	70,949	71,327	72,201	71,128	71,731
Self-employed workers .....	6,652	6,850	6,801	6,881	6,977	7,005	6,943	6,973	6,839	6,923	6,896	7,021	6,761	7,005	6,886
Unpaid family workers .....	455	404	426	403	416	417	405	396	422	371	354	306	338	369	389
<b>PERSONS AT WORK <sup>1</sup></b>															
Nonagricultural industries .....	88,133	88,325	87,431	88,195	88,246	88,488	88,694	88,468	89,499	89,441	89,583	89,202	89,870	89,625	90,837
Full-time schedules .....	72,647	72,022	70,825	71,526	71,929	72,071	72,265	72,131	72,807	72,945	72,875	72,761	73,375	73,115	74,232
Part time for economic reasons .....	3,281	3,965	4,086	4,143	4,183	4,220	4,176	4,218	4,474	4,145	4,227	4,044	4,143	3,798	4,225
Usually work full time .....	1,325	1,669	1,794	1,709	1,701	1,685	1,620	1,647	1,698	1,622	1,638	1,517	1,630	1,367	1,632
Usually work part time .....	1,956	2,296	2,292	2,434	2,482	2,535	2,556	2,571	2,776	2,523	2,589	2,527	2,513	2,431	2,593
Part time for noneconomic reasons .....	12,205	12,338	12,520	12,526	12,134	12,197	12,253	12,119	12,218	12,351	12,481	12,397	12,352	12,713	12,380

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

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

[Unemployment rates]

Selected categories	Annual average		1980						1981						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
<b>CHARACTERISTIC</b>															
Total, 16 years and over .....	5.8	7.1	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3	7.0
Men, 20 years and over .....	4.1	5.9	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1	5.6
Women, 20 years and over .....	5.7	6.3	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5	6.7
Both sexes, 16 to 19 years .....	16.1	17.7	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1
White, total .....	5.1	6.3	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4	6.2
Men, 20 years and over .....	3.6	5.2	5.8	5.8	5.8	5.7	5.7	5.5	5.5	5.4	5.4	5.2	5.6	5.3	4.9
Women, 20 years and over .....	5.0	5.6	5.8	5.8	5.5	5.8	5.8	5.9	6.0	5.7	5.6	5.7	6.0	5.7	5.8
Both sexes, 16 to 19 years .....	13.9	14.8	16.5	16.6	15.1	16.0	16.4	15.4	16.8	17.4	16.9	17.2	18.0	16.5	16.1
Black and other, total .....	11.3	13.2	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2	13.6
Men, 20 years and over .....	8.4	11.4	12.5	12.5	13.2	12.1	12.0	11.6	10.5	10.8	10.8	10.6	11.8	12.5	11.6
Women, 20 years and over .....	10.1	11.1	11.3	10.9	10.6	12.3	12.2	12.3	11.0	11.9	12.6	11.8	12.0	12.0	12.0
Both sexes, 16 to 19 years .....	33.5	35.8	35.9	37.6	37.8	37.4	36.6	37.5	36.5	35.4	37.3	36.1	33.6	38.6	36.4
Married men, spouse present .....	2.7	4.2	4.9	4.8	4.7	4.6	4.4	4.3	4.2	4.1	4.1	3.8	4.1	4.2	3.9
Married women, spouse present .....	5.1	5.8	6.1	6.0	5.7	6.0	5.9	5.8	6.2	5.8	6.0	5.9	5.9	5.6	5.6
Women who head families .....	8.3	9.1	8.8	9.0	9.0	10.2	9.9	10.4	10.5	9.6	9.4	9.8	10.3	10.6	11.5
Full-time workers .....	5.3	6.8	7.4	7.3	7.3	7.3	7.4	7.3	7.1	7.1	7.1	6.9	7.3	7.0	6.7
Part-time workers .....	8.7	8.7	8.8	8.7	8.7	9.1	8.6	8.2	9.2	9.1	9.0	9.0	9.0	9.7	9.2
Unemployed 15 weeks and over .....	1.2	1.7	1.8	2.0	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.2	2.0
Labor force time lost <sup>1</sup> .....	6.3	7.9	8.4	8.3	8.2	8.4	8.3	8.2	8.2	8.1	8.1	8.2	8.6	8.0	7.9
<b>OCCUPATION</b>															
White-collar workers .....	3.3	3.7	3.7	3.7	3.8	3.9	3.9	4.0	3.9	3.7	3.9	4.0	4.1	3.8	4.1
Professional and technical .....	2.4	2.5	2.4	2.4	2.5	2.6	2.5	2.6	2.8	2.6	2.7	3.2	2.9	2.8	2.8
Managers and administrators, except farm .....	1.9	2.4	2.6	2.5	2.4	2.5	2.4	2.5	2.4	2.4	2.6	2.4	2.7	2.8	2.7
Salesworkers .....	3.9	4.4	4.2	4.2	4.3	4.6	4.8	4.7	4.4	4.0	3.8	4.0	4.6	4.1	5.1
Clerical workers .....	4.6	5.3	5.4	5.4	5.4	5.6	5.6	5.8	5.7	5.3	5.9	5.6	5.6	5.3	5.7
Blue-collar workers .....	6.9	10.0	11.3	11.1	10.8	10.8	10.7	10.5	10.2	10.1	9.8	9.6	10.0	9.8	9.4
Craft and kindred workers .....	4.5	6.6	7.2	7.6	7.4	7.1	7.1	7.1	6.8	7.2	7.1	6.8	7.7	7.2	6.7
Operatives, except transport .....	8.4	12.2	14.4	13.3	13.0	13.2	13.0	12.9	12.1	11.9	11.3	11.5	11.9	11.0	11.1
Transport equipment operatives .....	5.4	8.8	10.0	9.8	10.4	10.6	10.6	8.8	9.1	8.3	9.3	8.1	8.2	8.4	6.9
Nonfarm laborers .....	10.8	14.6	15.8	16.1	15.2	15.3	15.0	14.8	15.0	14.9	14.1	13.8	13.1	14.8	14.2
Service workers .....	7.1	7.9	8.3	8.5	8.1	8.3	8.3	7.8	8.0	8.7	8.1	8.5	9.4	9.0	8.0
Farmworkers .....	3.8	4.4	4.6	5.5	4.3	4.4	4.0	4.0	5.0	4.7	5.1	3.7	5.4	6.0	4.5
<b>INDUSTRY</b>															
Nonagricultural private wage-and-salary workers <sup>2</sup> .....	5.7	7.4	8.0	8.0	7.8	7.8	7.8	7.7	7.5	7.5	7.3	7.2	7.8	7.4	7.2
Construction .....	10.2	14.2	15.8	17.3	15.9	14.6	14.8	13.8	13.3	13.2	14.7	14.4	16.3	16.6	15.0
Manufacturing .....	5.5	8.5	9.8	9.3	9.2	9.2	8.9	8.8	8.4	8.4	8.0	7.4	7.9	7.6	7.3
Durable goods .....	5.0	8.9	10.7	10.1	10.0	9.5	9.0	9.0	8.3	8.5	7.9	7.3	7.3	7.4	7.3
Non-durable goods .....	6.4	7.9	8.5	8.0	7.9	8.9	8.6	8.5	8.5	8.2	8.3	7.6	8.9	7.8	7.3
Transportation and public utilities .....	3.7	4.9	5.6	5.6	5.3	5.3	4.9	4.9	5.8	5.5	6.4	5.7	5.9	4.7	4.0
Wholesale and retail trade .....	6.5	7.4	7.6	7.7	7.7	7.8	8.2	8.3	7.6	7.6	7.3	7.3	8.4	7.5	7.9
Finance and service industries .....	4.9	5.3	5.6	5.5	5.4	5.6	5.5	5.5	5.8	6.0	5.6	5.9	5.9	5.8	5.6
Government workers .....	3.7	4.1	4.1	4.0	4.1	4.4	4.2	4.1	4.4	4.3	4.6	4.9	4.8	4.5	4.5
Agricultural wage-and-salary workers .....	9.1	10.8	10.8	13.2	10.7	11.1	10.1	10.6	11.5	12.1	11.9	9.1	11.1	13.1	10.3

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

<sup>2</sup> Includes mining, not shown separately.



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

Sex and age	Annual average		1980						1981						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	Total, 16 years and over	5.8	7.1	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3
16 to 19 years	16.1	17.7	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1
16 to 17 years	18.1	20.0	20.5	22.1	20.1	20.9	21.4	19.9	21.0	21.4	21.3	22.0	21.6	22.6	19.3
18 to 19 years	14.6	16.1	17.4	16.5	16.0	16.7	16.5	16.4	17.5	17.9	17.7	17.2	18.2	17.3	17.7
20 to 24 years	9.0	11.5	12.1	12.0	12.0	12.3	12.1	11.7	11.9	11.8	11.7	12.1	12.9	12.1	11.3
25 years and over	3.9	5.0	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.1	5.2	5.0	5.3	5.2	5.1
25 to 54 years	4.1	5.4	5.9	5.9	5.9	5.9	5.9	5.8	5.7	5.5	5.5	5.4	5.6	5.6	5.4
55 years and over	3.0	3.3	3.4	3.4	3.4	3.4	3.3	3.5	3.5	3.6	3.7	3.3	3.3	3.4	3.5
Men, 16 years and over	5.1	6.9	7.6	7.6	7.6	7.4	7.4	7.2	7.2	7.1	7.0	6.9	7.4	7.1	6.6
16 to 19 years	15.8	18.2	19.5	19.9	18.9	19.8	19.8	19.0	20.3	20.1	19.5	19.3	20.2	19.8	18.4
16 to 17 years	17.9	20.4	20.9	23.7	21.2	21.8	22.3	20.5	23.0	22.1	21.1	22.7	22.7	24.4	19.8
18 to 19 years	14.2	16.7	18.4	17.1	16.9	18.1	17.8	17.8	18.5	18.7	18.6	17.0	18.3	18.1	17.8
20 to 24 years	8.6	12.5	13.2	13.6	13.5	13.8	13.2	12.5	12.8	12.7	13.0	13.2	14.2	12.8	11.3
25 years and over	3.3	4.7	5.4	5.3	5.4	5.1	5.1	4.9	4.9	4.8	4.7	4.6	4.8	5.0	4.7
25 to 54 years	3.4	5.1	5.8	5.7	6.0	5.6	5.6	5.4	5.2	5.2	5.1	4.9	5.1	5.3	4.9
55 years and over	2.9	3.3	3.6	3.6	3.5	3.3	3.3	3.4	3.4	3.4	3.2	3.1	3.4	3.5	3.4
Women, 16 years and over	6.8	7.4	7.7	7.6	7.2	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.9	7.6	7.7
16 to 19 years	16.4	17.2	17.7	17.6	16.6	17.0	17.2	16.5	17.5	18.4	18.7	18.9	18.7	18.2	17.7
16 to 17 years	18.3	19.5	20.1	20.2	18.8	19.8	20.3	19.3	18.7	20.5	21.6	21.1	20.4	20.6	18.7
18 to 19 years	15.0	15.6	16.2	15.9	15.1	15.1	15.1	14.8	16.4	17.0	16.5	17.4	18.2	16.4	17.5
20 to 24 years	9.6	10.3	10.9	10.2	10.2	10.6	10.8	10.8	10.8	10.8	10.1	10.9	11.4	11.2	11.3
25 years and over	4.8	5.5	5.7	5.7	5.4	5.9	5.8	5.9	5.8	5.6	5.9	5.6	5.9	5.6	5.7
25 to 54 years	5.2	5.9	6.1	6.2	5.9	6.4	6.2	6.3	6.3	5.9	6.2	6.0	6.4	6.0	6.1
55 years and over	3.2	3.2	3.1	3.1	3.3	3.4	3.4	3.9	3.6	3.9	4.5	3.7	3.3	3.3	3.7

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

[Numbers in thousands]

Reason for unemployment	1980						1981						
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
<b>NUMBER OF UNEMPLOYED</b>													
Lost last job	4,364	4,319	4,387	4,240	4,229	4,226	3,847	3,896	3,846	3,819	4,084	4,219	3,691
On layoff	1,832	1,699	1,744	1,692	1,453	1,470	1,258	1,267	1,299	1,280	1,368	1,367	1,178
Other job losers	2,532	2,620	2,643	2,548	2,776	2,756	2,590	2,629	2,547	2,539	2,715	2,852	2,513
Left last job	866	890	855	870	897	813	907	884	863	854	1,009	863	898
Reentered labor force	1,868	1,883	1,844	2,013	1,896	1,869	2,039	1,970	2,040	2,017	2,126	1,955	2,022
Seeking first job	893	870	862	880	890	868	1,000	928	966	987	938	956	873
<b>PERCENT DISTRIBUTION</b>													
Total unemployed	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job losers	54.6	54.2	55.2	53.0	53.5	54.3	49.4	50.7	49.7	49.7	50.1	52.8	49.3
On layoff	22.9	21.3	21.9	21.1	18.4	18.9	16.1	16.5	16.8	16.7	16.8	17.1	15.7
Other job losers	31.7	32.9	33.3	31.8	35.1	35.4	33.2	34.2	32.9	33.1	33.3	35.7	33.6
Job leavers	10.8	11.2	10.8	10.9	11.3	10.5	11.6	11.5	11.2	11.1	12.4	10.8	12.0
Reentrants	23.4	23.6	23.2	25.2	24.0	24.0	26.2	25.7	26.4	26.3	26.1	24.5	27.0
New entrants	11.2	10.9	10.8	11.0	11.2	11.2	12.8	12.1	12.7	12.9	11.5	12.0	11.7
<b>UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE</b>													
Job losers	4.2	4.1	4.2	4.0	4.0	4.0	3.6	3.7	3.6	3.6	3.8	4.0	3.5
Job leavers	.8	.8	.8	.8	.9	.8	.9	.8	.8	.8	.9	.8	.8
Reentrants	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.9	1.9	1.9	2.0	1.8	1.9
New entrants	.9	.8	.8	.8	.8	.8	.9	.9	.9	.9	.9	.9	.8

### 7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1980						1981						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	Less than 5 weeks	2,869	3,208	3,317	3,255	3,042	3,186	3,108	3,115	3,259	3,203	3,209	3,074	3,369	3,172
5 to 14 weeks	1,892	2,411	2,649	2,533	2,586	2,500	2,524	2,217	2,264	2,324	2,356	2,462	2,581	2,360	2,196
15 weeks and over	1,202	1,829	1,935	2,150	2,295	2,292	2,329	2,378	2,358	2,250	2,192	2,105	2,168	2,315	2,100
15 to 26 weeks	684	1,028	1,093	1,239	1,366	1,256	1,213	1,231	1,079	992	1,013	1,001	1,022	1,205	1,068
27 weeks and over	518	802	842	911	929	1,036	1,116	1,147	1,279	1,257	1,179	1,104	1,146	1,110	1,032
Average (mean) duration, in weeks	10.9	11.9	11.8	12.5	13.0	13.3	13.6	13.5	14.4	14.4	14.0	13.7	13.2	14.2	13.9

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

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by 166,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

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

### Definitions

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

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

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

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

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

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

### Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of June 1981 data, published in the August 1981 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Complete comparable historical unadjusted and seasonally adjusted data are published in a Supplement to Employment and Earnings (unadjusted data from April 1977 through March 1981 and seasonally adjusted data from January 1974 through March 1981) and in *Employment and Earnings, United States, 1909-78*, BLS Bulletin 1312-11 (for prior periods).

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

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

The formulas used to construct the spendable average weekly earnings series reflect the latest provisions of the Federal income tax and social security tax laws. For the spendable average weekly earnings formulas for the years 1979-81, see *Employment and Earnings*, March 1981, 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, 1951-80

[Nonagricultural payroll data, in thousands]

Year	Total	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale and retail trade	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government		
											Total	Federal	State and local
1951	47,819	929	2,637	16,393	4,226	9,742	2,727	7,015	1,956	5,547	6,389	2,302	4,087
1952	48,793	898	2,668	16,632	4,248	10,004	2,812	7,192	2,035	5,699	6,609	2,420	4,188
1953	50,202	866	2,659	17,549	4,290	10,247	2,854	7,393	2,111	5,835	6,645	2,305	4,340
1954	48,990	791	2,646	16,314	4,084	10,235	2,867	7,368	2,200	5,969	6,751	2,188	4,563
1955	50,641	792	2,839	16,882	4,141	10,535	2,926	7,610	2,298	6,240	6,914	2,187	4,727
1956	52,369	822	3,039	17,243	4,244	10,858	3,018	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 <sup>1</sup>	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	89,823	958	4,463	21,040	5,136	20,192	5,204	14,989	4,975	17,112	15,947	2,773	13,147
1980	90,564	1,020	4,399	20,300	5,143	20,386	5,281	15,104	5,168	17,901	16,249	2,866	13,383

<sup>1</sup>Data include Alaska and Hawaii beginning in 1959.

## 9. Employment by State

[Nonagricultural payroll data, in thousands]

State	June 1980	May 1981	June 1981 <sup>P</sup>	State	June 1980	May 1981	June 1981 <sup>P</sup>
Alabama	1,357.6	1,344.7	1,342.5	Montana	290.5	285.9	290.1
Alaska	176.3	176.7	184.2	Nebraska	636.9	636.0	639.4
Arizona	991.2	1,020.7	1,000.8	Nevada	402.5	414.6	417.5
Arkansas	740.0	756.4	751.4	New Hampshire	390.5	384.9	389.8
California	9,883.9	9,945.7	9,992.9	New Jersey	3,103.1	3,078.4	3,134.1
Colorado	1,262.0	1,252.9	1,267.4	New Mexico	465.6	468.7	470.1
Connecticut	1,441.8	1,441.4	1,450.6	New York	7,283.0	7,260.0	7,307.7
Delaware	261.3	258.4	260.8	North Carolina	2,395.5	2,400.0	2,412.1
District of Columbia	618.1	613.5	615.8	North Dakota	248.4	249.4	249.8
Florida	3,551.1	3,735.3	3,737.9	Ohio	4,412.6	4,402.3	4,429.2
Georgia	2,135.2	2,167.8	2,163.5	Oklahoma	1,143.9	1,180.7	1,185.1
Hawaii	406.9	405.1	405.3	Oregon	1,054.1	1,022.4	1,031.8
Idaho	332.0	328.3	330.8	Pennsylvania	4,801.3	4,710.2	4,737.4
Illinois	4,922.3	4,825.4	4,878.7	Rhode Island	403.1	398.0	401.9
Indiana	2,123.5	2,136.0	2,130.7	South Carolina	1,191.3	1,194.8	1,197.7
Iowa	1,100.9	1,089.4	1,082.3	South Dakota	242.7	236.2	239.4
Kansas	952.5	962.3	962.4	Tennessee	1,728.4	1,729.2	1,725.4
Kentucky	1,213.4	1,178.7	1,188.9	Texas	5,845.6	6,103.2	6,134.4
Louisiana	1,564.1	1,623.4	1,629.1	Utah	553.6	548.2	552.7
Maine	430.6	419.8	428.8	Vermont	198.3	201.6	203.5
Maryland	1,707.6	1,703.7	1,717.1	Virginia	2,132.7	2,131.2	2,162.0
Massachusetts	2,678.4	2,691.6	2,702.4	Washington	1,627.1	1,607.6	1,613.7
Michigan	3,424.3	3,493.5	3,499.6	West Virginia	650.0	588.5	626.4
Minnesota	1,790.4	1,766.8	1,776.2	Wisconsin	1,950.2	1,950.1	1,969.3
Mississippi	826.1	829.0	820.3	Wyoming	207.1	206.8	210.6
Missouri	1,978.9	1,980.1	1,983.7	Virgin Islands	36.8	36.7	36.9

<sup>P</sup>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						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>P</sup>	July <sup>P</sup>
<b>TOTAL</b>	89,823	90,564	89,711	89,969	90,638	91,244	91,599	91,750	89,988	90,138	90,720	91,337	91,848	92,446	91,680
<b>MINING</b>	958	1,020	1,025	1,024	1,030	1,034	1,051	1,060	1,066	1,071	1,084	941	957	1,134	1,164
<b>CONSTRUCTION</b>	4,463	4,399	4,562	4,637	4,613	4,619	4,533	4,343	3,995	3,901	4,048	4,246	4,356	4,466	4,534
<b>MANUFACTURING</b>	21,040	20,300	19,702	19,997	20,212	20,235	20,293	20,238	20,075	20,065	20,160	20,253	20,342	20,525	20,330
Production workers	15,068	14,223	13,614	13,907	14,131	14,141	14,190	14,126	13,975	13,971	14,049	14,127	14,195	14,327	14,130
<b>Durable goods</b>	12,760	12,181	11,743	11,796	11,990	12,061	12,156	12,147	12,072	12,042	12,120	12,197	12,235	12,333	12,206
Production workers	9,110	8,438	8,000	8,048	8,244	8,304	8,391	8,374	8,305	8,279	8,345	8,412	8,438	8,505	8,367
Lumber and wood products	766.9	690.3	669.4	686.5	693.6	691.4	687.9	685.9	674.6	674.5	678.3	686.9	703.4	710.7	707.3
Furniture and fixtures	497.8	468.8	433.4	449.8	461.6	465.0	468.6	470.5	469.6	471.7	472.1	478.0	479.0	481.2	471.0
Stone, clay, and glass products	708.7	665.6	654.3	661.4	665.5	663.5	665.2	652.3	635.0	630.6	639.5	652.6	659.7	669.2	662.2
Primary metal industries	1,253.9	1,144.1	1,065.7	1,069.9	1,092.0	1,103.7	1,123.3	1,136.3	1,136.7	1,137.7	1,141.3	1,149.9	1,147.5	1,154.4	1,140.1
Fabricated metal products	1,717.7	1,609.0	1,519.9	1,549.9	1,576.4	1,586.6	1,597.6	1,596.4	1,580.2	1,578.1	1,585.4	1,593.7	1,596.1	1,606.6	1,587.0
Machinery, except electrical	2,484.8	2,497.0	2,448.6	2,426.4	2,453.4	2,461.2	2,479.6	2,496.8	2,496.9	2,498.4	2,504.3	2,506.1	2,508.6	2,532.0	2,518.5
Electric and electronic equipment	2,116.9	2,103.2	2,043.8	2,057.5	2,079.6	2,094.8	2,109.6	2,118.0	2,114.0	2,112.3	2,119.5	2,129.7	2,134.7	2,153.4	2,142.1
Transportation equipment	2,077.2	1,875.3	1,798.9	1,772.5	1,842.4	1,869.0	1,894.6	1,871.4	1,854.9	1,824.8	1,860.4	1,874.3	1,877.4	1,881.5	1,842.6
Instruments and related products	691.2	708.5	707.4	707.0	705.6	706.3	711.2	713.8	712.4	710.1	712.1	714.4	715.2	724.3	722.9
Miscellaneous manufacturing	444.8	419.3	401.8	415.2	419.8	419.2	417.9	405.9	398.0	403.3	406.7	411.3	413.4	419.4	411.9
<b>Nondurable goods</b>	8,280	8,118	7,959	8,201	8,222	8,174	8,137	8,091	8,003	8,023	8,040	8,056	8,107	8,192	8,124
Production workers	5,958	5,786	5,614	5,859	5,887	5,837	5,799	5,752	5,670	5,692	5,704	5,715	5,757	5,822	5,763
Food and kindred products	1,732.5	1,710.8	1,731.7	1,828.7	1,823.5	1,765.2	1,719.3	1,688.5	1,645.2	1,639.2	1,632.5	1,631.0	1,648.1	1,675.7	1,708.0
Tobacco manufactures	70.0	69.2	64.6	71.2	74.9	75.9	75.3	74.4	72.0	70.6	68.3	66.2	65.2	66.5	67.2
Textile mill products	885.1	852.7	809.8	842.5	843.3	845.4	847.8	846.1	841.0	841.1	840.9	841.6	844.3	849.0	832.5
Apparel and other textile products	1,304.3	1,265.8	1,208.5	1,267.6	1,274.3	1,270.5	1,262.3	1,241.1	1,222.8	1,238.7	1,250.2	1,255.2	1,265.9	1,282.0	1,233.7
Paper and allied products	706.8	694.0	682.5	689.0	688.6	690.6	691.4	691.5	687.7	687.7	688.6	690.9	693.1	700.8	696.5
Printing and publishing	1,235.1	1,258.3	1,251.3	1,251.0	1,255.1	1,259.1	1,268.2	1,278.3	1,269.0	1,273.6	1,278.2	1,280.4	1,281.8	1,286.0	1,281.8
Chemicals and allied products	1,109.3	1,107.4	1,106.2	1,102.8	1,100.9	1,099.5	1,100.1	1,101.2	1,100.1	1,102.9	1,106.8	1,106.2	1,110.3	1,120.3	1,116.7
Petroleum and coal products	209.8	196.6	211.4	211.8	210.2	209.7	209.5	206.8	206.5	205.7	207.0	209.5	212.9	214.9	214.6
Rubber and miscellaneous plastics products	781.6	730.7	680.8	702.2	718.0	725.7	730.6	733.2	731.8	734.2	737.2	743.5	749.2	759.0	748.1
Leather and leather products	245.7	232.6	211.8	234.4	232.7	232.1	232.5	229.4	226.9	229.5	230.4	231.7	235.9	238.1	224.6
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	5,136	5,143	5,132	5,134	5,159	5,166	5,147	5,150	5,063	5,076	5,095	5,120	5,148	5,191	5,161
<b>WHOLESALE AND RETAIL TRADE</b>	20,192	20,386	20,300	20,373	20,495	20,533	20,761	21,138	20,366	20,196	20,290	20,513	20,672	20,781	20,737
<b>WHOLESALE TRADE</b>	5,204	5,281	5,280	5,287	5,293	5,315	5,312	5,315	5,276	5,273	5,293	5,317	5,335	5,373	5,368
<b>RETAIL TRADE</b>	14,989	15,104	15,020	15,086	15,202	15,218	15,449	15,823	15,090	14,923	14,997	15,196	15,337	15,408	15,369
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	4,975	5,168	5,234	5,238	5,201	5,211	5,223	5,237	5,235	5,245	5,263	5,295	5,326	5,383	5,408
<b>SERVICES</b>	17,112	17,901	18,145	18,136	18,087	18,115	18,118	18,149	17,972	18,126	18,287	18,512	18,633	18,772	18,858
<b>GOVERNMENT</b>	15,947	16,249	15,611	15,430	15,841	16,331	16,473	16,435	16,216	16,458	16,493	16,457	16,414	16,194	15,488
Federal	2,773	2,866	2,949	2,862	2,754	2,774	2,776	2,782	2,773	2,774	2,769	2,773	2,782	2,825	2,831
State and local	13,174	13,383	12,662	12,568	13,087	13,557	13,697	13,653	13,443	13,684	13,724	13,684	13,632	13,369	12,657

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

[Nonagricultural payroll data, in thousands]

Industry division and group	1980						1981						
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>P</sup>	July <sup>P</sup>
<b>TOTAL</b> .....	89,960	90,219	90,461	90,668	90,844	90,949	91,091	91,258	91,347	91,458	91,564	91,583	91,966
<b>MINING</b> .....	1,004	1,008	1,023	1,032	1,052	1,069	1,083	1,091	1,098	950	957	1,112	1,141
<b>CONSTRUCTION</b> .....	4,270	4,324	4,362	4,379	4,389	4,387	4,390	4,389	4,416	4,418	4,334	4,274	4,253
<b>MANUFACTURING</b> .....	19,877	19,990	20,060	20,110	20,188	20,175	20,174	20,177	20,191	20,332	20,414	20,420	20,528
Production workers .....	13,814	13,930	13,992	14,024	14,081	14,059	14,053	14,053	14,074	14,187	14,247	14,245	14,351
<b>Durable goods</b> .....	11,859	11,907	11,968	12,013	12,090	12,077	12,084	12,074	12,099	12,207	12,254	12,277	12,339
Production workers .....	8,131	8,176	8,229	8,259	8,320	8,301	8,306	8,297	8,325	8,412	8,442	8,458	8,511
Lumber and wood products .....	662	671	680	679	683	687	689	691	692	702	710	699	700
Furniture and fixtures .....	447	456	462	462	463	464	464	466	467	478	484	487	487
Stone, clay, and glass products .....	645	651	656	655	658	655	654	654	651	656	658	656	654
Primary metal industries .....	1,070	1,077	1,092	1,108	1,126	1,137	1,137	1,140	1,141	1,145	1,142	1,143	1,145
Fabricated metal products .....	1,545	1,567	1,575	1,578	1,582	1,581	1,579	1,577	1,581	1,595	1,604	1,603	1,616
Machinery, except electrical .....	2,462	2,454	2,463	2,481	2,489	2,490	2,487	2,481	2,480	2,491	2,511	2,522	2,534
Electric and electronic equipment .....	2,064	2,074	2,078	2,087	2,096	2,103	2,110	2,110	2,117	2,134	2,143	2,149	2,166
Transportation equipment .....	1,841	1,839	1,843	1,848	1,874	1,839	1,840	1,833	1,849	1,878	1,872	1,885	1,887
Instruments and related products .....	708	707	709	709	712	712	713	711	712	714	716	718	724
Miscellaneous manufacturing .....	415	411	410	406	407	409	411	411	409	414	414	415	426
<b>Nondurable goods</b> .....	8,018	8,083	8,092	8,097	8,098	8,098	8,090	8,103	8,092	8,125	8,160	8,143	8,189
Production workers .....	5,683	5,754	5,763	5,765	5,761	5,758	5,747	5,756	5,749	5,775	5,805	5,797	5,840
Food and kindred products .....	1,708	1,720	1,712	1,711	1,705	1,701	1,696	1,705	1,691	1,697	1,703	1,676	1,684
Tobacco manufactures .....	70	68	68	69	71	71	71	72	72	72	71	72	72
Textile mill products .....	828	844	843	845	844	842	841	839	838	842	843	844	852
Apparel and other textile products .....	1,254	1,263	1,261	1,256	1,253	1,250	1,244	1,243	1,243	1,250	1,258	1,262	1,281
Paper and allied products .....	682	687	689	691	692	692	691	691	689	691	694	695	697
Printing and publishing .....	1,255	1,256	1,261	1,262	1,265	1,269	1,269	1,272	1,276	1,280	1,283	1,283	1,286
Chemicals and allied products .....	1,099	1,097	1,101	1,102	1,103	1,105	1,106	1,109	1,108	1,107	1,109	1,110	1,110
Petroleum and coal products .....	208	208	208	208	209	209	211	210	210	211	213	212	211
Rubber and miscellaneous plastics products .....	692	708	717	722	725	729	730	731	734	744	753	757	761
Leather and leather products .....	222	232	232	231	231	230	231	231	231	231	233	232	235
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	5,119	5,126	5,124	5,129	5,114	5,118	5,124	5,135	5,139	5,161	5,148	5,145	5,151
<b>WHOLESALE AND RETAIL TRADE</b> .....	20,355	20,413	20,450	20,461	20,464	20,470	20,529	20,600	20,635	20,636	20,714	20,703	20,798
<b>WHOLESALE TRADE</b> .....	5,261	5,274	5,290	5,296	5,296	5,300	5,305	5,313	5,316	5,333	5,346	5,341	5,352
<b>RETAIL TRADE</b> .....	15,094	15,139	15,160	15,165	15,168	15,170	15,224	15,287	15,319	15,303	15,368	15,362	15,466
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	5,173	5,188	5,206	5,221	5,235	5,254	5,268	5,283	5,293	5,316	5,326	5,330	5,344
<b>SERVICES</b> .....	17,940	17,981	18,043	18,087	18,160	18,240	18,300	18,343	18,371	18,475	18,540	18,568	18,653
<b>GOVERNMENT</b> .....	16,222	16,189	16,193	16,249	16,242	16,236	16,223	16,240	16,204	16,170	16,131	16,031	16,098
Federal .....	2,893	2,808	2,784	2,795	2,796	2,800	2,799	2,795	2,781	2,767	2,779	2,781	2,775
State and local .....	13,329	13,381	13,409	13,454	13,446	13,436	13,424	13,445	13,423	13,403	13,352	13,250	13,323

**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.
<b>Total accessions</b>													
1977	4.0	3.7	3.7	4.0	3.8	4.6	4.9	4.3	5.3	4.6	3.9	3.1	2.4
1978	4.1	3.8	3.2	3.8	4.0	4.7	4.9	4.4	5.4	4.9	4.3	3.3	2.4
1979	4.0	4.0	3.4	3.8	3.9	4.7	4.8	4.3	5.0	4.5	4.1	3.0	2.2
1980	3.5	3.8	3.3	3.5	3.1	3.4	3.9	3.8	4.5	4.3	3.6	2.7	2.2
1981	...	3.4	3.0	3.4	3.3	3.5	<sup>P</sup> 4.0	...	...	...	...	...	...
<b>New hires</b>													
1977	2.8	2.2	2.1	2.6	2.7	3.5	3.7	3.0	4.0	3.5	3.0	2.2	1.6
1978	3.1	2.5	2.2	2.7	2.9	3.6	3.9	3.3	4.2	3.9	3.5	2.6	1.7
1979	2.9	2.8	2.5	2.8	2.9	3.6	3.8	3.1	3.7	3.4	3.1	2.2	1.5
1980	2.1	2.4	2.2	2.3	2.0	2.1	2.4	2.1	2.5	2.6	2.2	1.6	1.2
1981	...	1.8	1.8	2.0	2.0	2.3	<sup>P</sup> 2.7	...	...	...	...	...	...
<b>Recalls</b>													
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	.8	.7	.7	.9	.9	.8	.7	.6	.5
1980	1.1	1.1	.9	.9	.8	1.0	1.2	1.5	1.7	1.4	1.1	.9	.8
1981	...	1.3	1.0	1.1	1.1	1.0	<sup>P</sup> 1.0	...	...	...	...	...	...
<b>Total separations</b>													
1977	3.8	3.9	3.4	3.4	3.4	3.5	3.5	4.3	5.1	4.9	3.8	3.4	3.4
1978	3.9	3.6	3.1	3.5	3.6	3.7	3.8	4.1	5.3	4.9	4.1	3.5	3.4
1979	4.0	3.8	3.2	3.6	3.7	3.8	3.9	4.3	5.7	4.7	4.2	3.8	3.5
1980	4.0	4.1	3.5	3.7	4.7	4.8	4.4	4.2	4.8	4.1	3.8	3.0	3.1
1981	...	3.6	3.1	3.2	3.1	3.1	<sup>P</sup> 3.2	...	...	...	...	...	...
<b>Quits</b>													
1977	1.8	1.4	1.3	1.6	1.7	1.9	1.9	1.9	3.1	2.8	1.9	1.5	1.2
1978	2.1	1.5	1.4	1.8	2.0	2.1	2.2	2.1	3.5	3.1	2.3	1.7	1.3
1979	2.0	1.8	1.6	1.9	2.0	2.1	2.1	2.0	3.3	2.7	2.1	1.6	1.1
1980	1.5	1.6	1.5	1.6	1.5	1.5	1.4	1.4	2.2	1.9	1.4	1.1	.9
1981	...	1.2	1.1	1.2	1.3	1.3	<sup>P</sup> 1.4	...	...	...	...	...	...
<b>Layoffs</b>													
1977	1.1	1.7	1.4	1.0	.9	.8	.8	1.5	1.0	1.1	1.1	1.1	1.5
1978	.9	1.2	.9	.9	.8	.7	.7	1.1	.8	.8	.9	1.0	1.4
1979	1.1	1.1	.8	.8	.9	.7	.9	1.4	1.3	1.1	1.2	1.5	1.7
1980	1.7	1.6	1.2	1.3	2.3	2.5	2.2	2.0	1.7	1.4	1.5	1.3	1.6
1981	...	1.6	1.2	1.2	1.0	1.0	<sup>P</sup> 1.1	...	...	...	...	...	...

**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		
	June 1980	May 1981	June 1981 <sup>P</sup>	June 1980	May 1981	June 1981 <sup>P</sup>	June 1980	May 1981	June 1981 <sup>P</sup>	June 1980	May 1981	June 1981 <sup>P</sup>	June 1980	May 1981	June 1981 <sup>P</sup>	June 1980	May 1981	June 1981 <sup>P</sup>
<b>MANUFACTURING</b>	3.9	3.5	4.0	2.4	2.3	2.7	1.2	1.0	1.0	4.4	3.1	3.2	1.4	1.3	1.4	2.2	1.0	1.1
Seasonally adjusted	3.4	3.1	3.4	1.9	2.0	2.1	1.2	1.0	1.0	4.8	3.4	3.4	1.4	1.3	1.4	2.6	1.3	1.3
<b>Durable goods</b>	3.5	3.1	3.6	1.9	1.9	2.4	1.2	.9	.9	4.5	2.7	3.0	1.1	1.1	1.1	2.6	.9	1.0
Lumber and wood products	6.6	5.5	6.1	3.1	3.6	4.4	3.3	1.7	1.6	5.3	4.4	4.7	2.1	2.2	2.6	2.4	1.3	1.1
Furniture and fixtures	3.2	3.9	3.9	2.0	3.0	3.1	1.0	.7	.6	4.6	3.7	3.9	1.7	1.9	1.8	2.1	.9	1.2
Stone, clay, and glass products	4.3	4.1	4.1	2.2	2.4	2.7	1.7	1.5	1.1	4.8	3.1	3.3	1.2	1.2	1.2	2.7	1.2	1.2
Primary metal industries	2.9	2.6	2.7	.8	1.3	1.4	1.9	1.1	1.1	6.7	2.4	2.7	.5	.5	.6	5.4	1.1	1.3
Fabricated metal products	4.0	3.5	3.9	2.1	2.1	2.6	1.6	1.1	1.0	5.1	3.1	3.3	1.2	1.2	1.2	3.0	1.2	1.2
Machinery, except electrical	2.6	2.5	3.1	1.8	1.7	2.3	.5	.6	.6	3.5	2.3	2.4	.9	.9	.9	1.8	.7	.8
Electric and electronic equipment	2.9	2.6	3.3	1.9	1.8	2.3	.5	.5	.6	4.0	2.5	2.6	1.2	1.0	1.0	1.9	.6	.8
Transportation equipment	3.9	2.8	...	1.5	1.4	...	1.8	1.0	...	4.9	2.5	...	.8	.8	...	3.2	.9	...
Instruments and related products	3.5	2.6	3.9	2.9	2.0	3.3	.3	.3	.4	2.7	2.2	2.2	1.2	1.1	1.1	1.1	.8	.4
Miscellaneous manufacturing	4.8	4.4	4.8	3.0	3.0	3.3	1.5	1.3	1.3	5.0	3.8	4.1	1.7	1.6	1.7	2.4	1.3	1.4
<b>Nondurable goods</b>	4.5	4.1	4.6	3.1	2.8	3.3	1.2	1.1	1.1	4.2	3.5	3.6	1.8	1.7	1.7	1.6	1.1	1.2
Food and kindred products	8.0	5.9	7.3	5.2	3.4	4.4	2.5	2.2	2.7	5.0	4.7	5.4	2.3	1.9	2.1	1.9	2.1	2.5
Tobacco manufacturers	2.7	3.6	...	1.1	.9	...	...	.7	2.0	...	2.1	3.7	...	.3	.3	...	1.0	2.5
Textile mill products	3.4	3.8	3.6	2.6	2.9	2.9	.6	.6	.4	4.2	3.5	3.3	2.0	2.0	1.9	1.2	.6	.5
Apparel and other products	4.9	5.4	5.4	3.3	3.6	3.9	1.5	1.5	1.4	5.4	5.1	4.8	2.6	2.6	2.6	2.0	1.7	1.4
Paper and allied products	3.1	2.9	3.3	1.8	1.9	2.4	1.0	.8	.6	3.4	2.3	2.1	.8	.8	.8	1.8	.8	.7
Printing and publishing	3.5	3.0	3.5	2.9	2.5	2.9	.5	.4	.4	3.3	2.8	3.0	1.8	1.7	1.6	.9	.6	.8
Chemicals and allied products	2.2	2.0	2.4	1.7	1.5	2.0	.3	.3	.3	2.0	1.4	1.8	.6	.6	.6	.8	.3	.5
Petroleum and coal products	3.7	2.7	3.0	2.9	1.9	2.6	.7	.7	.2	1.8	1.8	1.8	.6	.6	.6	.7	.6	.5
Rubber and miscellaneous plastics products	3.9	4.0	4.4	2.1	2.7	3.0	1.4	1.0	1.0	6.1	3.3	3.5	1.6	1.6	1.6	3.5	.8	1.0
Leather and leather products	5.9	7.0	6.9	4.3	4.8	5.2	1.3	1.9	1.4	5.8	5.8	5.7	2.8	3.1	2.8	1.9	1.7	2.0

### 14. Hours and earnings, by industry division, 1950-80

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

Year	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings
	Total private			Mining			Construction			Manufacturing		
1950	\$53.13	39.8	\$1.335	\$67.16	37.9	\$1.772	\$69.68	37.4	\$1.863	\$58.32	40.5	\$1.440
1951	57.86	39.9	1.45	74.11	38.4	1.93	76.96	38.1	2.02	63.34	40.6	1.56
1952	60.65	39.9	1.52	77.59	38.6	2.01	82.86	38.9	2.13	66.75	40.7	1.64
1953	63.76	39.6	1.61	83.03	38.8	2.14	86.41	37.9	2.28	70.47	40.5	1.74
1954	64.52	39.1	1.65	82.60	38.6	2.14	88.91	37.2	2.39	70.49	39.6	1.78
1955	67.72	39.6	1.71	89.54	40.7	2.20	90.90	37.1	2.45	75.30	40.7	1.85
1956	70.74	39.3	1.80	95.06	40.8	2.33	96.38	37.5	2.57	78.78	40.4	1.95
1957	73.33	38.8	1.89	98.25	40.1	2.45	100.27	37.0	2.71	81.19	39.8	2.04
1958	75.08	38.5	1.95	96.08	38.9	2.47	103.78	36.8	2.82	82.32	39.2	2.10
1959 <sup>1</sup>	78.78	39.0	2.02	103.68	40.5	2.56	108.41	37.0	2.93	88.26	40.3	2.19
1960	80.67	38.6	2.09	105.04	40.4	2.60	112.67	36.7	3.07	89.72	39.7	2.26
1961	82.60	38.6	2.14	106.92	40.5	2.64	118.08	36.9	3.20	92.34	39.8	2.32
1962	85.91	38.7	2.22	110.70	41.0	2.70	122.47	37.0	3.31	96.56	40.4	2.39
1963	88.46	38.8	2.28	114.40	41.6	2.75	127.19	37.3	3.41	99.23	40.5	2.45
1964	91.33	38.7	2.36	117.74	41.9	2.81	132.06	37.2	3.55	102.97	40.7	2.53
1965	95.45	38.8	2.46	123.52	42.3	2.92	138.38	37.4	3.70	107.53	41.2	2.61
1966	98.82	38.6	2.56	130.24	42.7	3.05	146.26	37.6	3.89	112.19	41.4	2.71
1967	101.84	38.0	2.68	135.89	42.6	3.19	154.95	37.7	4.11	114.49	40.6	2.82
1968	107.73	37.8	2.85	142.71	42.6	3.35	164.49	37.3	4.41	122.51	40.7	3.01
1969	114.61	37.7	3.04	154.80	43.0	3.60	181.54	37.9	4.79	129.51	40.6	3.19
1970	119.83	37.1	3.23	164.40	42.7	3.85	195.45	37.3	5.24	133.33	39.8	3.35
1971	127.31	36.9	3.45	172.14	42.4	4.06	211.67	37.2	5.69	142.44	39.9	3.57
1972	136.90	37.0	3.70	189.14	42.6	4.44	221.19	36.5	6.06	154.71	40.5	3.82
1973	145.39	36.9	3.94	201.40	42.4	4.75	235.89	36.8	6.41	166.46	40.7	4.09
1974	154.76	36.5	4.24	219.14	41.9	5.23	249.25	36.6	6.81	176.80	40.0	4.42
1975	163.53	36.1	4.53	249.31	41.9	5.95	266.08	36.4	7.31	190.79	39.5	4.83
1976	175.45	36.1	4.86	273.90	42.4	6.46	283.73	36.8	7.71	209.32	40.1	5.22
1977	189.00	36.0	5.25	301.20	43.4	6.94	295.65	36.5	8.10	228.90	40.3	5.68
1978	203.70	35.8	5.69	332.88	43.4	7.67	318.69	36.8	8.66	249.27	40.4	6.17
1979	219.91	35.7	6.16	365.07	43.0	8.49	342.99	37.0	9.27	269.34	40.2	6.70
1980	235.10	35.3	6.66	396.14	43.2	9.17	367.04	37.0	9.92	288.62	39.7	7.27
	Transportation and public utilities			Wholesale and retail trade			Finance, insurance, and real estate			Services		
1950				\$44.55	40.5	\$1.100	\$50.52	37.7	\$1.340			
1951				47.79	40.5	1.18	54.67	37.7	1.45			
1952				49.20	40.0	1.23	57.08	37.8	1.51			
1953				51.35	39.5	1.30	59.57	37.7	1.58			
1954				53.33	39.5	1.35	62.04	37.6	1.65			
1955				55.16	39.4	1.40	63.92	37.6	1.70			
1956				57.48	39.1	1.47	65.68	36.9	1.78			
1957				59.60	38.7	1.54	67.53	36.7	1.84			
1958				61.76	38.6	1.60	70.12	37.1	1.89			
1959 <sup>1</sup>				64.41	38.8	1.66	72.74	37.3	1.95			
1960				66.01	38.6	1.71	75.14	37.2	2.02			
1961				67.41	38.3	1.76	77.12	36.9	2.09			
1962				69.91	38.2	1.83	80.94	37.3	2.17			
1963				72.01	38.1	1.89	84.38	37.5	2.25			
1964	\$118.78	41.1	\$2.89	74.66	37.9	1.97	85.79	37.3	2.30	\$70.03	36.1	\$1.94
1965	125.14	41.3	3.03	76.91	37.7	2.04	88.91	37.2	2.39	73.60	35.9	2.05
1966	128.13	41.2	3.11	79.39	37.1	2.14	92.13	37.3	2.47	77.04	35.5	2.17
1967	130.82	40.5	3.23	82.35	36.6	2.25	95.72	37.1	2.58	80.38	35.1	2.29
1968	138.85	40.6	3.42	87.00	36.1	2.41	101.75	37.0	2.75	83.97	34.7	2.42
1969	147.74	40.7	3.63	91.39	35.7	2.56	108.70	37.1	2.93	90.57	34.7	2.61
1970	155.93	40.5	3.85	96.02	35.3	2.72	112.67	36.7	3.07	96.66	34.4	2.81
1971	168.82	40.1	4.21	101.09	35.1	2.88	117.85	36.6	3.22	103.06	33.9	3.04
1972	187.86	40.4	4.65	106.45	34.9	3.05	122.98	36.6	3.36	110.85	33.9	3.27
1973	203.31	40.5	5.02	111.76	34.6	3.23	129.20	36.6	3.53	117.29	33.8	3.47
1974	217.48	40.2	5.41	119.02	34.2	3.48	137.61	36.5	3.77	126.00	33.6	3.75
1975	233.44	39.7	5.88	126.45	33.9	3.73	148.19	36.5	4.06	134.67	33.5	4.02
1976	256.71	39.8	6.45	133.79	33.7	3.97	155.43	36.4	4.27	143.52	33.3	4.31
1977	278.90	39.9	6.99	142.52	33.3	4.28	165.26	36.4	4.54	153.45	33.0	4.65
1978	302.80	40.0	7.57	153.64	32.9	4.67	178.00	36.4	4.89	163.67	32.8	4.99
1979	325.58	39.9	8.16	164.96	32.6	5.06	190.77	36.2	5.27	175.27	32.7	5.36
1980	351.25	39.6	8.87	176.46	32.2	5.48	209.24	36.2	5.78	190.71	32.6	5.85

<sup>1</sup> 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						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>P</sup>	July <sup>P</sup>	
	<b>TOTAL PRIVATE</b> .....	35.7	35.3	35.3	35.5	35.3	35.3	35.3	35.6	35.1	35.0	35.2	35.2	35.2	35.4	35.5
<b>MINING</b> .....	43.0	43.2	42.0	43.2	43.5	43.6	43.6	44.1	43.6	42.8	42.3	43.6	43.8	42.0	43.9	
<b>CONSTRUCTION</b> .....	37.0	37.0	37.7	37.3	38.0	37.9	36.8	37.2	36.4	35.0	37.2	36.9	36.9	37.4	37.7	
<b>MANUFACTURING</b> .....	40.2	39.7	38.8	39.4	39.8	39.8	40.2	40.8	39.9	39.5	39.9	39.7	40.1	40.2	39.6	
Overtime hours .....	3.3	2.8	2.4	2.7	3.0	2.9	3.1	3.3	2.9	2.8	2.8	2.6	2.9	3.0	2.8	
<b>Durable goods</b> .....	40.8	40.1	39.0	39.7	40.2	40.3	40.7	41.5	40.4	39.9	40.5	40.3	40.6	40.6	40.0	
Overtime hours .....	3.5	2.8	2.3	2.6	2.9	2.9	3.1	3.4	2.9	2.8	2.9	2.7	3.0	3.0	2.8	
Lumber and wood products .....	39.4	38.6	38.1	39.2	39.3	39.2	39.2	39.7	38.8	38.5	39.0	39.1	39.6	39.5	38.5	
Furniture and fixtures .....	38.7	38.1	36.2	37.6	38.3	38.5	38.4	39.6	38.1	38.3	38.8	38.2	38.5	38.8	37.7	
Stone, clay, and glass products .....	41.5	40.8	40.3	40.7	41.1	41.3	41.4	41.6	40.3	39.6	40.6	40.9	41.1	41.1	40.6	
Primary metal industries .....	41.4	40.1	38.6	39.0	39.9	39.9	40.8	41.6	41.1	40.7	41.1	41.2	40.9	40.9	40.5	
Fabricated metal products .....	40.7	40.4	39.2	40.0	40.5	40.5	40.9	41.6	40.4	40.0	40.6	40.2	40.7	40.8	40.0	
Machinery except electrical .....	41.8	41.0	39.9	40.3	41.0	40.7	41.3	42.2	41.2	40.8	41.2	40.8	41.2	41.2	40.5	
Electric and electronic equipment .....	40.3	39.8	38.4	39.2	39.7	39.8	40.4	41.0	40.1	39.6	40.2	39.8	40.1	40.2	39.5	
Transportation equipment .....	41.1	40.6	39.6	40.0	40.7	41.1	41.7	43.1	40.9	40.1	41.1	41.0	41.6	41.4	40.7	
Instruments and related products .....	40.8	40.5	39.6	39.9	40.1	40.3	40.9	41.2	40.6	40.5	40.6	39.9	40.3	40.4	40.2	
Miscellaneous manufacturing .....	38.8	38.7	37.7	38.5	39.1	38.9	39.1	39.5	38.6	38.4	38.9	38.6	38.9	39.1	38.5	
<b>Nondurable goods</b> .....	39.3	39.0	38.5	39.0	39.1	39.1	39.4	39.9	39.2	38.9	39.1	38.9	39.4	39.5	39.1	
Overtime hours .....	3.1	2.8	2.6	2.9	3.1	2.9	3.0	3.1	2.9	2.8	2.7	2.6	2.9	2.9	2.8	
Food and kindred products .....	39.9	39.7	39.9	40.4	40.3	39.7	40.1	40.3	40.0	39.3	39.2	39.3	39.8	39.8	39.7	
Tobacco manufactures .....	38.0	38.1	36.6	36.9	38.2	40.0	40.1	38.1	38.6	38.5	37.2	37.2	36.6	38.3	39.2	
Textile mill products .....	40.4	40.1	38.5	39.2	39.8	39.9	40.3	40.9	39.9	39.9	40.1	39.4	40.3	40.4	39.6	
Apparel and other textile products .....	35.3	35.4	35.3	35.4	35.2	35.5	35.4	35.9	35.2	35.3	35.8	35.2	36.0	36.3	35.9	
Paper and allied products .....	42.6	42.3	41.4	41.8	42.3	42.2	42.8	43.7	42.7	42.2	42.4	42.3	42.5	42.7	42.4	
Printing and publishing .....	37.5	37.1	36.8	37.2	37.2	37.2	37.2	38.1	37.1	36.9	37.1	37.0	37.3	37.3	37.2	
Chemicals and allied products .....	41.9	41.5	40.7	40.9	41.3	41.5	42.0	42.1	41.6	41.5	41.6	41.6	41.6	41.7	41.6	
Petroleum and coal products .....	43.8	41.8	42.7	42.2	43.4	43.7	43.6	43.3	42.6	42.5	42.6	43.9	43.6	43.3	44.0	
Rubber and miscellaneous plastics products .....	40.5	40.1	38.6	40.0	40.3	40.7	41.1	41.6	41.0	40.2	40.7	40.4	40.9	40.9	39.8	
Leather and leather products .....	36.5	36.7	36.4	36.6	36.3	36.6	36.3	36.9	36.5	36.7	36.8	36.3	37.4	37.8	36.4	
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	39.9	39.6	39.9	39.7	39.7	39.8	39.7	40.0	39.4	39.5	39.4	39.3	39.3	39.6	39.7	
<b>WHOLESALE AND RETAIL TRADE</b> .....	32.6	32.2	32.6	32.7	32.2	32.1	32.1	32.5	31.7	31.7	31.9	32.1	32.0	32.3	32.7	
<b>WHOLESALE TRADE</b> .....	38.8	38.5	38.2	38.4	38.5	38.7	38.5	38.9	38.5	38.3	38.5	38.5	38.5	38.6	38.6	
<b>RETAIL TRADE</b> .....	30.6	30.2	30.8	30.9	30.2	30.0	30.0	30.5	29.5	29.6	29.8	30.0	29.9	30.3	30.8	
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	36.2	36.2	36.2	36.3	36.1	36.3	36.3	36.3	36.4	36.4	36.4	36.3	36.1	36.1	36.3	
<b>SERVICES</b> .....	32.7	32.6	33.1	33.1	32.6	32.6	32.6	32.6	32.5	32.6	32.6	32.6	32.5	32.7	33.0	



### 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						
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>P</sup>	July <sup>P</sup>
<b>TOTAL PRIVATE</b> .....	35.1	35.2	35.3	35.3	35.3	35.3	35.3	35.2	35.3	35.4	35.3	35.3	35.3
<b>MANUFACTURING</b> .....	39.2	39.5	39.6	39.7	39.8	39.9	40.1	39.8	39.9	40.2	40.3	40.1	40.0
Overtime hours .....	2.5	2.7	2.7	2.8	3.0	3.0	3.0	2.8	2.8	2.9	3.2	3.0	2.9
<b>Durable goods</b> .....	39.5	40.0	40.1	40.1	40.4	40.4	40.6	40.1	40.4	40.8	40.8	40.6	40.5
Overtime hours .....	2.4	2.7	2.7	2.8	3.0	3.1	3.0	2.8	2.8	3.0	3.2	3.0	3.0
Lumber and wood products .....	38.2	38.8	38.7	38.6	39.1	39.3	39.8	39.1	39.1	39.6	39.8	38.0	38.6
Furniture and fixtures .....	36.8	37.6	38.1	38.0	38.0	38.4	38.5	38.6	38.6	38.8	39.0	38.8	38.4
Stone, clay, and glass products .....	40.4	40.5	40.8	40.8	40.9	41.0	41.3	40.6	40.7	41.2	41.0	40.7	40.7
Primary metal industries .....	38.9	39.4	39.7	40.1	40.8	41.2	41.1	40.7	41.0	41.2	41.0	40.8	40.7
Fabricated metal products .....	39.8	40.2	40.4	40.4	40.5	40.4	40.5	40.2	40.4	40.9	40.9	40.7	40.7
Machinery, except electrical .....	40.6	40.8	40.9	40.8	41.0	40.9	41.1	40.8	40.9	41.3	41.4	41.2	41.2
Electric and electronic equipment .....	39.1	39.6	39.6	39.8	39.9	40.0	40.1	39.6	40.0	40.2	40.4	40.2	40.3
Transportation equipment .....	40.0	40.8	40.7	40.7	41.2	41.0	41.3	40.5	40.9	42.0	41.8	41.5	41.2
Instruments and related products .....	40.2	40.3	40.2	40.3	40.4	40.4	40.6	40.5	40.5	40.1	40.4	40.4	40.9
Miscellaneous manufacturing .....	38.4	38.6	38.8	38.6	38.6	38.9	38.8	38.6	38.7	38.9	39.2	39.2	39.2
<b>Nondurable goods</b> .....	38.6	38.9	38.9	39.0	39.1	39.2	39.5	39.2	39.2	39.3	39.6	39.4	39.2
Overtime hours .....	2.7	2.8	2.8	2.8	2.9	2.9	3.0	2.9	2.8	2.9	3.1	3.0	2.9
Food and kindred products .....	39.7	39.8	39.7	39.6	39.8	39.7	40.3	39.9	39.7	40.1	40.0	39.8	39.5
Textile mill products .....	39.1	39.5	39.8	39.8	39.9	40.1	40.0	40.0	39.9	39.8	40.5	40.2	40.3
Apparel and other textile products .....	35.2	35.2	35.2	35.4	35.2	35.5	36.1	35.6	35.7	35.5	36.0	36.0	35.8
Paper and allied products .....	41.7	42.0	42.2	42.2	42.4	42.8	42.6	42.4	42.4	42.6	42.8	42.7	42.7
Printing and publishing .....	37.0	37.0	36.9	37.1	36.8	37.4	37.5	37.3	37.1	37.3	37.6	37.5	37.3
Chemicals and allied products .....	41.0	41.2	41.4	41.5	41.6	41.6	41.6	41.6	41.5	41.5	41.7	41.8	41.9
Petroleum and coal products .....	42.1	42.1	42.4	42.8	42.9	43.2	43.8	43.8	43.5	44.1	43.8	43.2	43.3
Rubber and miscellaneous plastics products .....	39.1	40.2	40.2	40.5	40.8	40.8	40.9	40.3	40.5	40.7	41.3	41.0	40.3
Leather and leather products .....	36.2	36.6	36.4	36.7	36.3	36.6	36.8	37.0	37.1	36.6	37.1	37.1	36.3
<b>WHOLESALE AND RETAIL TRADE</b> .....	32.0	32.1	32.1	32.1	32.2	32.1	32.2	32.2	32.2	32.3	32.1	32.0	32.0
<b>WHOLESALE TRADE</b> .....	38.1	38.3	38.5	38.5	38.5	38.6	38.8	38.6	38.6	38.6	38.5	38.5	38.5
<b>RETAIL TRADE</b> .....	30.0	30.1	30.1	30.1	30.2	30.0	30.1	30.2	30.2	30.3	30.1	30.0	30.0
<b>SERVICES</b> .....	32.6	32.6	32.6	32.6	32.7	32.7	32.7	32.8	32.8	32.8	32.7	32.5	32.5

NOTE: The industry divisions of mining; construction; tobacco manufactures (a major manufacturing group, nondurable goods); transportation and public utilities; and finance, insurance, and real estate are not shown. This is because the seasonal component in these is small

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

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

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

Industry division and group	Annual average		1980						1981						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June P	July P
<b>TOTAL PRIVATE</b> .....	\$6.16	\$6.66	\$6.64	\$6.67	\$6.79	\$6.85	\$6.92	\$6.94	\$7.03	\$7.06	\$7.10	\$7.13	\$7.17	\$7.20	\$7.23
<b>MINING</b> .....	8.49	9.17	9.07	9.16	9.31	9.36	9.49	9.57	9.77	9.86	9.85	9.70	9.68	9.92	10.08
<b>CONSTRUCTION</b> .....	9.27	9.92	9.90	10.04	10.18	10.24	10.24	10.33	10.42	10.41	10.44	10.43	10.53	10.60	10.75
<b>MANUFACTURING</b> .....	6.70	7.27	7.29	7.30	7.42	7.49	7.60	7.70	7.73	7.75	7.80	7.88	7.92	7.96	8.00
<b>Durable goods</b> .....	7.13	7.75	7.76	7.77	7.92	8.01	8.11	8.23	8.23	8.26	8.32	8.40	8.45	8.51	8.53
Lumber and wood products .....	6.07	6.53	6.68	6.72	6.76	6.73	6.76	6.74	6.79	6.81	6.79	6.83	6.92	7.08	7.10
Furniture and fixtures .....	5.06	5.49	5.53	5.55	5.59	5.60	5.63	5.70	5.71	5.74	5.76	5.78	5.83	5.88	5.89
Stone, clay, and glass products .....	6.85	7.50	7.59	7.63	7.69	7.74	7.81	7.83	7.87	7.89	7.94	8.11	8.20	8.30	8.36
Primary metal industries .....	8.98	9.77	9.83	9.85	9.96	10.10	10.29	10.36	10.36	10.56	10.52	10.76	10.68	10.76	10.76
Fabricated metal products .....	6.85	7.45	7.44	7.49	7.63	7.69	7.77	7.88	7.89	7.91	8.01	8.05	8.17	8.23	8.24
<b>Machinery, except electrical</b> .....	7.32	8.00	8.00	8.02	8.21	8.30	8.38	8.50	8.53	8.56	8.62	8.67	8.75	8.81	8.83
<b>Electric and electronic equipment</b> .....	6.32	6.95	6.95	7.01	7.12	7.18	7.27	7.38	7.41	7.43	7.47	7.51	7.55	7.57	7.63
<b>Transportation equipment</b> .....	8.53	9.32	9.32	9.33	9.54	9.75	9.87	10.09	9.96	9.93	10.08	10.14	10.25	10.35	10.34
<b>Instruments and related products</b> .....	6.17	6.80	6.85	6.86	6.91	6.94	7.01	7.13	7.19	7.20	7.23	7.25	7.31	7.34	7.43
<b>Miscellaneous manufacturing</b> .....	5.03	5.47	5.47	5.48	5.53	5.56	5.62	5.73	5.82	5.83	5.85	5.91	5.93	5.93	5.93
<b>Nondurable goods</b> .....	6.01	6.56	6.62	6.65	6.71	6.74	6.82	6.89	6.97	6.98	7.01	7.08	7.11	7.13	7.22
Food and kindred products .....	6.27	6.86	6.90	6.90	6.94	6.95	7.09	7.13	7.21	7.24	7.29	7.37	7.43	7.41	7.44
Tobacco manufactures .....	6.67	7.73	8.10	7.82	7.53	7.69	7.86	8.10	8.50	8.56	8.61	8.90	9.03	9.33	9.47
Textile mill products .....	4.66	5.08	5.07	5.20	5.25	5.27	5.31	5.34	5.35	5.35	5.36	5.36	5.40	5.42	5.50
Apparel and other textile products .....	4.23	4.57	4.50	4.60	4.69	4.73	4.75	4.81	4.89	4.87	4.94	4.96	4.98	5.00	4.94
Paper and allied products .....	7.13	7.84	7.96	7.99	8.06	8.09	8.18	8.27	8.27	8.28	8.30	8.37	8.42	8.53	8.68
Printing and publishing .....	6.94	7.53	7.53	7.62	7.73	7.74	7.79	7.88	7.92	7.96	8.02	8.04	8.10	8.14	8.22
Chemicals and allied products .....	7.60	8.30	8.36	8.40	8.47	8.53	8.60	8.69	8.74	8.80	8.84	8.94	8.99	9.03	9.16
Petroleum and coal products .....	9.36	10.09	10.25	10.21	10.33	10.38	10.52	10.38	11.06	11.33	11.23	11.40	11.28	11.28	11.42
Rubber and miscellaneous plastics products .....	5.97	6.56	6.55	6.65	6.72	6.79	6.88	6.97	7.06	7.04	7.07	7.15	7.22	7.26	7.29
Leather and leather products .....	4.22	4.58	4.56	4.60	4.62	4.65	4.69	4.74	4.86	4.88	4.90	4.93	4.95	4.96	4.95
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	8.16	8.87	8.89	8.94	9.02	9.19	9.27	9.30	9.33	9.45	9.42	9.54	9.59	9.61	9.70
<b>WHOLESALE AND RETAIL TRADE</b> .....	5.06	5.48	5.48	5.49	5.56	5.59	5.64	5.62	5.80	5.84	5.85	5.87	5.89	5.88	5.90
<b>WHOLESALE TRADE</b> .....	6.39	6.96	6.98	6.99	7.07	7.09	7.19	7.23	7.32	7.38	7.42	7.47	7.51	7.50	7.56
<b>RETAIL TRADE</b> .....	4.53	4.88	4.89	4.89	4.95	4.98	5.02	4.99	5.18	5.20	5.20	5.22	5.23	5.23	5.24
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	5.27	5.78	5.77	5.83	5.87	5.91	6.02	6.00	6.10	6.21	6.19	6.20	6.24	6.26	6.30
<b>SERVICES</b> .....	5.36	5.85	5.78	5.81	5.93	6.00	6.09	6.12	6.21	6.27	6.29	6.30	6.33	6.32	6.33

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

[Seasonally adjusted data: 1977 = 100]

Industry	1980						1981						June 1981 to July 1981	July 1980 to July 1981	
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June P			July P
<b>TOTAL PRIVATE (in current dollars)</b> ..	127.6	128.7	129.4	130.6	132.1	132.6	133.8	135.0	135.8	136.7	137.7	138.3	138.9	0.4	8.8
Mining <sup>1</sup> .....	134.3	135.0	136.7	137.5	139.2	139.8	142.1	143.2	144.0	145.7	145.6	147.0	148.2	.8	10.4
Construction .....	121.8	122.9	123.1	124.4	125.2	126.2	127.6	128.0	129.0	129.4	130.5	131.8	131.8	1.0	8.2
Manufacturing .....	130.4	131.3	132.3	133.5	134.6	135.4	136.5	137.5	138.5	139.9	140.7	141.5	142.2	.5	9.1
Transportation and public utilities ..	127.7	128.1	128.1	130.9	132.6	132.8	133.7	135.4	136.1	137.3	138.9	139.6	139.7	( <sup>2</sup> )	9.3
Wholesale and retail trade .....	128.2	129.3	129.9	130.8	132.3	132.4	133.7	135.0	135.8	136.4	137.4	137.7	138.1	.3	7.7
Finance, insurance, and real estate ..	126.7	128.7	129.1	129.9	132.4	131.9	133.2	135.0	136.0	135.4	136.8	137.4	138.0	.4	8.9
Services .....	125.0	126.6	127.3	128.5	130.5	131.1	132.0	133.2	134.0	134.8	136.0	136.6	136.8	.2	9.4
<b>TOTAL PRIVATE (in constant dollars)</b> ..	93.8	93.9	93.9	93.2	93.3	92.7	92.8	92.7	92.8	93.0	93.1	93.0	.....	.....	.....

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

<sup>2</sup> Less than 0.05.

### 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						
	1979	1980	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>P</sup>	July <sup>P</sup>
	<b>TOTAL PRIVATE</b> .....	\$219.91	\$235.10	\$234.39	\$236.79	\$239.69	\$241.81	\$244.28	\$247.06	\$246.75	\$247.10	\$249.92	\$250.98	\$252.38	\$254.88
<b>MINING</b> .....	365.07	396.14	380.94	395.71	404.99	408.10	413.76	422.04	425.97	422.01	416.66	422.92	423.98	416.64	442.51
<b>CONSTRUCTION</b> .....	342.99	367.04	373.23	374.49	386.84	388.10	376.83	384.28	379.29	364.35	388.37	384.87	388.56	396.44	405.28
<b>MANUFACTURING</b> .....	269.34	288.62	282.85	287.62	295.32	298.10	305.52	314.16	308.43	306.13	311.22	312.84	317.59	319.99	316.80
<b>Durable goods</b> .....	290.90	310.78	302.64	308.47	318.38	322.80	330.08	341.55	332.49	329.57	336.96	338.52	343.07	345.51	341.20
Lumber and wood products .....	239.16	252.06	254.51	263.42	265.67	263.82	264.99	267.58	263.45	262.19	264.81	267.05	274.03	279.66	273.35
Furniture and fixtures .....	195.82	209.17	200.19	208.68	214.10	215.60	216.19	225.72	217.55	219.84	223.49	220.80	224.46	228.14	222.05
Stone, clay, and glass products .....	284.28	306.00	305.88	310.54	316.06	319.66	323.33	325.73	317.16	312.44	322.36	331.70	337.02	341.13	339.42
Primary metal industries .....	371.77	391.78	379.44	384.15	397.40	402.99	419.83	430.98	425.80	429.79	432.37	443.31	436.81	440.08	435.78
Fabricated metal products .....	278.80	300.98	291.65	299.60	309.02	311.45	317.79	327.81	318.76	316.40	325.21	323.61	332.52	335.78	329.60
<b>Machinery except electrical</b> .....	305.98	328.00	319.20	323.21	336.61	337.81	346.09	358.70	351.44	349.25	355.14	353.74	360.50	362.97	357.62
<b>Electric and electronic equipment</b> .....	254.70	276.61	266.88	274.79	282.66	285.76	293.71	302.58	297.14	294.23	300.29	298.90	302.76	304.31	301.39
<b>Transportation equipment</b> .....	350.58	378.39	369.07	373.20	388.28	400.73	411.58	434.88	407.36	398.19	414.29	415.74	426.40	428.49	420.84
<b>Instruments and related products</b> .....	251.74	275.40	271.26	273.71	277.09	279.68	286.71	293.76	291.91	291.60	293.54	289.28	294.59	296.54	298.69
<b>Miscellaneous manufacturing</b> .....	195.16	211.69	206.22	210.98	216.22	216.28	219.74	226.34	224.65	223.87	227.57	228.13	230.68	231.86	228.31
<b>Nondurable goods</b> .....	236.19	255.84	254.87	259.35	262.36	263.53	268.71	274.91	273.22	271.52	274.09	275.41	280.13	281.64	282.30
Food and kindred products .....	250.17	272.34	275.31	278.76	279.68	275.92	284.31	287.34	288.40	284.53	285.77	289.64	295.71	294.92	295.37
Tobacco manufactures .....	253.46	294.51	294.46	288.56	287.65	307.60	315.19	308.61	328.10	329.56	320.29	331.08	348.56	357.34	371.22
Textile mill products .....	188.26	203.71	195.20	203.84	208.95	210.27	213.99	218.41	213.47	213.47	214.94	211.18	217.62	218.97	217.80
Apparel and other textile products .....	149.32	161.78	158.85	162.84	165.09	167.92	168.15	172.68	172.13	171.91	176.85	174.59	179.28	181.50	177.35
Paper and allied products .....	303.74	331.63	329.54	333.98	340.94	341.40	350.10	361.40	353.13	349.42	351.92	354.05	357.85	364.23	368.03
Printing and publishing .....	260.25	279.36	277.10	283.46	287.56	287.93	289.79	300.23	293.83	293.72	297.54	297.48	302.13	303.62	305.78
Chemicals and allied products .....	318.44	344.45	340.25	343.56	349.81	354.00	361.20	365.85	363.58	365.20	367.74	371.90	373.98	376.55	381.06
Petroleum and coal products .....	409.97	421.76	437.68	430.86	448.32	453.61	458.67	449.45	471.16	481.53	478.40	500.46	491.81	488.42	502.48
Rubber and miscellaneous plastics products .....	241.79	263.06	252.83	266.00	270.82	276.35	282.77	289.95	289.46	283.01	287.75	288.86	295.30	296.93	290.14
Leather and leather products .....	154.03	168.09	165.98	168.36	167.71	170.19	170.25	174.91	177.39	179.10	180.32	178.96	185.13	187.49	180.18
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	325.58	351.25	354.71	354.92	358.09	365.76	368.02	372.00	367.60	373.28	371.15	374.92	376.89	380.56	385.09
<b>WHOLESALE AND RETAIL TRADE</b> .....	164.96	176.46	178.65	179.52	179.03	179.44	181.04	182.65	183.86	185.13	186.62	188.43	188.48	189.92	192.93
<b>WHOLESALE TRADE</b> .....	247.93	267.96	266.64	268.42	272.20	274.38	276.82	281.25	281.82	282.65	285.67	287.60	289.14	289.50	291.82
<b>RETAIL TRADE</b> .....	138.62	147.38	150.61	151.10	149.49	149.40	150.60	152.20	152.81	153.92	154.96	156.60	156.38	158.47	161.39
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	190.77	209.24	208.87	211.63	211.91	214.53	218.53	217.80	222.04	226.04	225.32	225.06	225.26	225.99	228.69
<b>SERVICES</b> .....	175.27	190.71	191.32	192.31	192.32	195.60	198.53	199.51	201.83	204.40	205.05	205.38	205.73	206.66	208.89

**20. Gross and spendable weekly earnings, in current and 1977 dollars, 1961 to date**

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

Year and month	Private nonagricultural workers						Manufacturing workers					
	Gross average weekly earnings		Spendable average weekly earnings				Gross average weekly earnings		Spendable average weekly earnings			
			Worker with no dependents		Married worker with 3 dependents				Worker with no dependents		Married worker with 3 dependents	
	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars
1961	\$82.60	\$167.21	\$67.08	\$135.79	\$74.48	\$150.77	\$92.34	\$186.92	\$74.60	\$151.01	\$82.18	\$166.36
1962	85.91	172.16	69.56	139.40	76.99	154.29	96.56	193.51	77.86	156.03	85.53	171.40
1963	88.46	175.17	71.05	140.69	78.56	155.56	99.23	196.50	79.51	157.45	87.25	172.77
1964	91.33	178.38	75.04	146.56	82.57	161.27	102.97	201.11	84.40	164.84	92.18	180.04
1965	95.45	183.21	79.32	152.25	86.63	166.28	107.53	206.39	89.08	170.98	96.78	185.76
1966	98.82	184.37	81.29	151.66	88.66	165.41	112.19	209.31	91.45	170.62	99.33	185.32
1967	101.84	184.83	83.38	151.32	90.86	164.90	114.49	207.79	92.97	168.73	100.93	183.18
1968	107.73	187.68	86.71	151.06	95.28	165.99	122.51	312.43	97.70	170.21	106.75	185.98
1969	114.61	189.44	90.96	150.35	99.99	165.27	129.51	214.07	101.90	168.43	111.44	184.20
1970	119.83	186.94	96.21	150.09	104.90	163.65	133.33	208.00	106.32	165.87	115.58	180.31
1971	127.31	190.58	103.80	155.39	112.43	168.31	142.44	213.23	114.97	172.11	124.24	185.99
1972	136.90	198.41	112.19	162.59	121.68	176.35	154.71	224.22	125.34	181.65	135.57	196.48
1973	145.39	198.35	117.51	160.31	127.38	173.78	166.46	227.09	132.57	180.86	143.50	195.77
1974	154.76	190.12	124.37	152.79	134.61	165.37	176.80	217.20	140.19	172.22	151.56	186.19
1975	163.53	184.16	132.49	149.20	145.65	164.02	190.79	214.85	151.61	170.73	166.29	187.26
1976	175.45	186.85	143.30	152.61	155.87	166.00	209.32	222.92	167.83	178.73	181.32	193.10
1977	189.00	189.00	155.19	155.19	169.93	169.93	228.90	228.90	183.80	183.80	200.06	200.06
1978	203.70	189.31	165.39	153.71	180.71	167.95	249.27	231.66	197.40	183.46	214.87	199.69
1979	219.91	183.41	178.00	148.46	194.82	162.49	269.34	224.64	212.70	177.40	232.38	193.81
1980	235.10	172.74	188.82	138.74	206.06	151.65	288.62	212.06	225.79	165.90	247.01	181.49
1980: July	234.39	171.59	188.33	137.87	205.86	150.70	282.85	207.06	221.87	162.42	242.63	177.62
August	236.79	172.21	190.01	138.19	207.68	151.04	287.62	209.18	225.11	163.72	246.25	179.09
September	239.69	172.69	192.03	138.35	209.88	151.21	295.32	212.77	230.33	165.94	252.09	181.62
October	241.81	172.72	193.51	138.22	211.49	151.06	298.10	212.93	232.22	165.87	254.20	181.57
November	244.28	172.88	195.24	138.17	213.37	151.00	305.52	216.22	237.26	167.91	259.83	183.89
December	247.06	173.38	197.18	138.37	215.47	151.21	314.16	220.46	242.86	170.43	266.14	186.76
1981: January	246.75	171.83	195.68	136.27	213.96	149.00	308.43	214.78	237.60	165.46	260.36	181.31
February	247.10	170.18	195.92	134.93	214.22	147.53	306.13	210.83	236.08	162.59	258.70	178.17
March	249.92	171.06	197.88	135.44	216.34	148.08	311.22	213.02	239.37	163.84	262.38	179.59
April	250.98	170.73	198.61	135.11	217.14	147.71	312.84	212.82	240.39	163.53	263.55	179.29
May	252.38	170.18	199.59	134.59	218.20	147.13	317.59	214.15	243.40	164.13	266.99	180.03
June <sup>p</sup>	254.88	170.49	201.32	134.66	220.08	147.21	319.99	214.04	244.92	163.83	268.72	179.75
July <sup>p</sup>	256.67	---	202.56	---	221.43	---	316.80	---	242.90	---	266.41	---

<sup>p</sup> Not available.

NOTE: The earnings expressed in 1977 dollars have been adjusted for changes in price level as measured by the Bureau's Consumer Price Index for Urban Wage Earners and Clerical Workers. These series are described in "The Spendable Earnings Series: A Technical Note on its Cal-

 culation," *Employment and Earnings and Monthly Report on the Labor Force*, February 1969, pp. 6-13. See also "Spendable Earnings Formulas, 1979-81," *Employment and Earnings*, March 1981, 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 unem-

ployed. 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	1980							1981					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
All programs:													
Insured unemployment	3,790	4,140	3,911	3,961	3,661	3,726	4,085	4,621	4,264	3,948	3,453	3,111	2,954
State unemployment insurance program: <sup>1</sup>													
Initial claims <sup>2</sup>	2,319	2,737	1,829	1,702	1,808	1,673	2,544	2,653	1,806	1,684	1,647	1,421	
Insured unemployment (average weekly volume)	3,455	3,692	3,408	3,087	2,903	2,983	3,321	3,844	3,669	3,382	2,988	2,691	2,599
Rate of insured unemployment	4.0	4.3	3.9	3.6	3.3	3.4	3.8	4.4	4.2	3.9	3.4	3.1	3.0
Weeks of unemployment compensated	12,441	14,398	12,786	11,689	11,443	9,524	12,603	14,228	12,882	13,504	11,891	9,790	
Average weekly benefit amount for total unemployment	\$99.88	\$98.75	\$99.68	\$99.86	\$92.32	\$101.96	\$101.43	\$102.34	\$101.89	\$105.63	\$105.96	\$105.49	
Total benefits paid	\$1,213,595	\$1,397,508	\$1,249,782	\$1,144,885	\$1,125,416	\$1,055,065	\$1,242,957	\$1,416,513	\$1,313,507	\$1,393,612	\$1,226,815	\$1,006,341	
Unemployment compensation for ex-servicemen: <sup>3</sup>													
Initial claims <sup>1</sup>	23	27	23	25	23	17	21	19	17	18	16	15	
Insured unemployment (average weekly volume)	45	58	55	56	56	54	55	57	54	51	46	43	42
Weeks of unemployment compensated	122	331	244	245	255	216	261	257	221	234	214	183	
Total benefits paid	\$11,761	\$33,342	\$24,560	\$24,804	\$25,880	\$21,024	\$27,015	\$26,646	\$22,517	\$24,668	\$23,048	\$19,965	
Unemployment compensation for Federal civilian employees: <sup>4</sup>													
Initial claims	14	17	15	19	21	14	18	22	13	12	12	11	
Insured unemployment (average weekly volume)	20	26	25	29	32	35	37	41	40	36	31	27	25
Weeks of unemployment compensated	50	124	93	105	130	118	150	160	148	156	135	107	
Total benefits paid	\$4,665	\$11,296	\$8,707	\$9,699	\$11,917	\$11,365	\$14,184	\$15,432	\$14,573	\$15,561	\$13,701	\$11,023	
Railroad unemployment insurance:													
Applications	24	44	13	10	9	7	11	13	5	5	6	6	26
Insured unemployment (average weekly volume)	27	44	39	40	38	38	39	53	50	44	41	35	30
Number of payments	55	66	86	89	84	70	83	118	104	115	94	79	86
Average amount of benefit payment	\$199.06	\$207.08	\$211.87	\$211.99	\$208.49	\$209.00	\$212.27	\$209.38	\$214.56	\$214.93	\$201.12	\$199.43	\$201.06
Total benefits paid	\$10,140	\$13,320	\$17,336	\$18,809	\$17,789	\$14,269	\$18,046	\$20,303	\$22,049	\$23,233	\$19,239	\$15,428	\$16,206
Employment service: <sup>5</sup>													
New applications and renewals	12,864	14,249	15,431	16,632			4,476			8,659			
Nonfarm placements	2,730	3,105	3,445	3,827			871			1,574			

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

<sup>2</sup> Includes interstate claims for the Virgin Islands. Excludes transition claims under State programs.

<sup>3</sup> Excludes data on claims and payments made jointly with other programs.

<sup>4</sup> Includes the Virgin Islands. Excludes data on claims and payments made jointly with State pro-

grams.

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

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

## PRICE DATA

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

### Definitions

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

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

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

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

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

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

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

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

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

### Notes on the data

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

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

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

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

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

## 22. Consumer Price Index for Urban Wage Earners and Clerical Workers, annual averages and changes, 1967-80

[1967 = 100]

Year	All items		Food and beverages		Housing		Apparel and upkeep		Transportation		Medical care		Entertainment		Other goods and services	
	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change
1967	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...
1968	104.2	4.2	103.6	3.6	104.0	4.0	105.4	5.4	103.2	3.2	106.1	6.1	105.7	5.7	105.2	5.2
1969	109.8	5.4	108.8	5.0	110.4	6.2	111.5	5.8	107.2	3.9	113.4	6.9	111.0	5.0	110.4	4.9
1970	116.3	5.9	114.7	5.4	118.2	7.1	116.1	4.1	112.7	5.1	120.6	6.3	116.7	5.1	116.8	5.8
1971	121.3	4.3	118.3	3.1	123.4	4.4	119.8	3.2	118.6	5.2	128.4	6.5	122.9	5.3	122.4	4.8
1972	125.3	3.3	123.2	4.1	128.1	3.8	122.3	2.1	119.9	1.1	132.5	3.2	126.5	2.9	127.5	4.2
1973	133.1	6.2	139.5	13.2	133.7	4.4	126.8	3.7	123.8	3.3	137.7	3.9	130.0	2.8	132.5	3.9
1974	147.7	11.0	158.7	13.8	148.8	11.3	136.2	7.4	137.7	11.2	150.5	9.3	139.8	7.5	142.0	7.2
1975	161.2	9.1	172.1	8.4	164.5	10.6	142.3	4.5	150.6	9.4	168.6	12.0	152.2	8.9	153.9	8.4
1976	170.5	5.8	177.4	3.1	174.6	6.1	147.6	3.7	165.5	9.9	184.7	9.5	159.8	5.0	162.7	5.7
1977	181.5	6.5	188.0	6.0	186.5	6.8	154.2	4.5	177.2	7.1	202.4	9.6	167.7	4.9	172.2	5.8
1978	195.3	7.6	206.2	9.7	202.6	8.6	159.5	3.4	185.8	4.9	219.4	8.4	176.2	5.1	183.2	6.4
1979	217.7	11.5	228.7	10.9	227.5	12.3	166.4	4.3	212.8	14.5	240.1	9.4	187.6	6.5	196.3	7.2
1980	247.0	13.5	248.7	8.7	263.2	15.7	177.4	6.6	250.5	17.7	267.2	11.3	203.7	8.5	213.6	8.8

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981					1980	1981						
		June	Jan.	Feb.	Mar.	Apr.		May	June	June	Jan.	Feb.	Mar.	Apr.
All items	247.6	260.5	263.2	265.1	266.8	269.0	271.3	247.8	260.7	263.5	265.2	266.8	269.1	271.4
Food and beverages	245.7	261.4	263.7	265.0	265.7	265.4	266.5	246.4	262.1	264.3	265.5	266.1	265.9	267.0
Housing	266.7	279.1	280.9	282.6	284.8	288.5	292.2	266.9	279.1	280.7	282.2	284.3	288.1	291.9
Apparel and upkeep	177.2	181.1	182.0	185.1	186.4	186.4	185.8	176.0	180.8	181.8	184.3	186.0	186.2	185.8
Transportation	249.7	264.7	270.9	273.5	275.3	277.8	279.9	250.6	265.7	272.1	274.4	276.3	278.9	281.0
Medical care	264.7	279.5	282.6	284.7	287.0	289.0	291.5	265.9	281.4	284.4	287.0	289.1	290.8	292.9
Entertainment	205.3	214.4	216.7	218.2	219.2	220.3	220.8	204.0	212.2	215.0	216.1	217.0	217.7	218.3
Other goods and services	212.5	226.2	227.4	228.7	229.9	232.2	233.4	212.1	224.4	225.6	226.8	227.9	230.4	231.4
Commodities	232.8	245.4	248.3	249.8	250.8	251.9	253.2	233.0	245.8	248.8	250.2	251.2	252.4	253.8
Commodities less food and beverages	223.2	234.3	237.4	239.0	240.0	241.7	243.1	223.4	234.7	237.9	239.4	240.5	242.3	243.8
Nondurables less food and beverages	241.1	250.2	258.6	263.1	263.8	263.8	263.5	243.2	252.6	261.4	265.7	266.5	266.6	266.3
Durables	208.6	221.0	220.3	219.8	221.1	223.9	226.6	206.8	219.5	218.6	217.8	219.3	222.4	225.2
Services	274.2	287.7	290.1	292.5	295.4	299.6	303.5	275.1	288.4	290.8	293.1	295.9	300.0	303.9
Rent, residential	191.1	200.9	201.9	203.0	204.2	205.9	206.8	190.8	200.6	201.6	202.7	203.9	205.5	206.4
Household services less rent	328.8	342.3	345.4	348.8	353.3	360.4	366.7	331.9	345.5	348.5	351.8	356.2	363.5	370.1
Transportation services	242.6	258.7	260.5	262.5	264.4	266.6	269.6	242.7	257.7	259.7	261.3	263.1	265.5	268.2
Medical care services	285.9	302.1	305.2	307.5	309.8	311.7	314.4	287.3	304.3	307.4	310.2	312.2	313.6	315.8
Other services	216.9	230.4	232.3	233.2	234.4	235.3	236.3	217.9	230.2	232.1	233.0	233.8	234.5	235.6
Special indexes:														
All items less food	245.5	257.6	260.4	262.3	264.2	267.0	269.5	245.7	257.9	260.8	262.6	264.4	267.2	269.7
All items less mortgage interest costs	235.4	247.8	250.6	252.3	253.6	255.2	256.9	236.0	248.5	251.4	252.9	254.2	255.8	257.5
Commodities less food	221.4	232.4	235.4	237.0	238.0	239.6	241.1	221.6	232.7	236.0	237.4	238.6	240.3	241.8
Nondurables less food	236.3	245.3	253.2	257.5	258.1	258.2	258.0	238.3	247.5	255.9	259.9	260.7	260.9	260.7
Nondurables less food and apparel	269.3	281.1	292.4	297.3	297.7	298.0	298.0	271.4	283.0	294.7	299.5	299.9	300.1	300.0
Nondurables	244.5	256.9	262.3	265.2	265.9	265.8	266.2	245.7	258.3	263.8	266.6	267.3	267.2	267.6
Services less rent	290.0	304.2	306.9	309.5	312.8	317.4	321.9	291.2	305.2	307.9	310.4	313.5	318.2	322.6
Services less medical care	271.0	284.2	286.5	288.9	291.8	296.2	300.1	271.8	284.7	287.0	289.2	292.0	296.4	300.4
Domestically produced farm foods	234.8	252.4	254.0	255.4	255.3	254.7	255.9	234.7	252.1	253.9	254.9	255.0	254.2	255.3
Selected beef cuts	264.8	276.2	273.0	270.9	267.7	270.9	271.6	267.1	277.9	275.1	273.9	270.7	273.8	274.3
Energy	367.8	381.7	401.1	409.3	409.8	411.3	414.0	371.8	385.2	405.4	413.7	414.0	414.9	417.3
All items less energy	238.3	251.2	252.5	253.8	255.6	257.9	260.2	237.6	250.6	251.8	252.9	254.7	257.0	259.3
All items less food and energy	233.7	245.7	246.8	248.1	250.1	253.0	255.6	232.7	244.8	245.8	246.9	248.9	251.9	254.5
Commodities less food and energy	201.2	211.5	211.7	212.2	213.5	215.7	217.5	199.8	210.4	210.5	210.7	212.2	214.6	216.6
Energy commodities	404.1	420.4	449.0	460.0	458.4	455.4	453.1	405.6	421.3	450.1	460.9	459.3	456.0	453.7
Services less energy	271.5	285.4	287.6	289.9	292.7	296.5	299.8	272.5	286.2	288.4	290.6	293.2	297.0	300.2
Purchasing power of the consumer dollar, 1967 = \$1	\$0.404	\$0.384	\$0.380	\$0.377	\$0.375	\$0.372	\$0.369	\$0.404	\$0.384	\$0.380	\$0.377	\$0.375	\$0.372	\$0.368

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
<b>FOOD AND BEVERAGES</b>	245.7	261.4	263.7	265.0	265.7	265.4	266.5	246.4	262.1	264.3	265.5	266.1	265.9	267.0
<b>Food</b>	252.0	268.6	270.8	272.2	272.9	272.5	273.6	252.7	269.2	271.4	272.6	273.2	272.9	274.0
Food at home	248.0	265.6	267.3	268.6	268.7	267.7	268.7	247.7	265.1	267.0	268.1	268.2	267.2	268.2
Cereals and bakery products	245.9	262.9	265.3	266.7	268.3	270.0	271.5	245.7	263.0	265.0	266.5	268.0	269.4	270.7
Cereals and cereal products (12/77 = 100)	133.1	143.2	144.5	145.2	145.4	146.8	148.3	133.9	144.5	145.5	146.5	146.9	148.4	150.0
Flour and prepared flour mixes (12/77 = 100)	131.1	135.9	137.5	138.5	137.1	138.8	139.0	131.4	136.8	137.9	139.4	139.2	140.3	141.4
Cereal (12/77 = 100)	133.0	145.8	146.5	146.9	147.8	149.8	152.4	133.3	147.2	148.0	148.5	148.9	151.3	154.0
Rice, pasta, and cornmeal (12/77 = 100)	135.2	146.0	147.9	148.9	149.5	149.8	150.9	137.0	147.8	149.3	150.5	151.4	152.0	152.7
Bakery products (12/77 = 100)	129.1	137.7	139.0	139.7	140.8	141.5	142.1	128.8	137.5	138.5	139.2	140.1	140.6	141.0
White bread	216.9	229.5	231.4	232.9	233.2	235.1	236.0	215.4	229.4	230.9	231.2	232.1	233.2	233.1
Other breads (12/77 = 100)	128.1	137.1	137.3	137.9	139.5	139.3	140.2	130.8	139.4	140.1	140.3	141.2	141.7	142.5
Fresh biscuits, rolls, and muffins (12/77 = 100)	129.5	137.6	138.9	140.1	140.4	141.5	141.7	127.9	136.4	136.9	138.4	138.7	139.6	139.7
Fresh cakes and cupcakes (12/77 = 100)	127.6	138.5	139.5	140.0	142.1	142.3	142.3	126.9	136.8	138.1	139.5	140.8	141.2	141.2
Cookies (12/77 = 100)	126.3	138.0	139.0	139.7	141.2	141.8	143.3	126.9	139.0	139.8	140.6	141.8	142.1	143.3
Crackers and bread and cracker products (12/77 = 100)	123.6	127.0	128.6	129.1	130.9	128.2	130.7	124.5	126.8	128.6	129.6	131.1	128.9	131.5
Fresh sweetrolls, coffee cake, and donuts (12/77 = 100)	129.1	138.0	140.4	141.1	141.7	142.8	142.9	130.0	138.5	140.0	140.7	141.7	142.5	142.3
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	131.2	139.7	141.4	141.9	144.0	147.0	146.1	127.2	135.2	136.3	137.6	139.0	140.1	140.3
Meats, poultry, fish, and eggs	231.2	255.1	252.5	250.5	247.7	247.0	248.7	230.4	254.1	251.6	249.9	247.1	246.3	248.4
Meats, poultry, and fish	237.9	260.6	257.9	256.2	253.0	253.2	255.0	237.1	259.4	257.0	255.7	252.2	252.4	254.5
Meats	238.1	259.7	256.4	254.4	251.0	252.3	254.2	237.5	259.2	256.0	254.2	250.7	251.7	253.9
Beef and veal	263.8	275.3	272.3	270.3	267.4	270.3	271.1	265.6	276.4	273.8	272.6	269.5	272.5	273.0
Ground beef other than canned	266.9	276.3	272.8	269.7	264.8	264.1	264.6	269.0	279.3	275.7	272.9	269.0	267.8	267.9
Chuck roast	268.6	285.3	288.1	284.1	281.4	280.3	281.0	275.0	295.2	298.6	295.6	291.8	290.9	288.9
Round roast	240.9	250.0	248.0	243.9	242.8	246.8	246.2	243.8	249.6	247.5	248.8	247.5	249.4	249.5
Round steak	247.4	262.4	259.0	256.1	252.9	256.0	255.1	247.3	255.5	254.7	253.3	251.3	253.7	253.6
Sirloin steak	264.8	264.9	262.0	259.8	261.5	271.4	274.6	268.3	266.3	263.5	264.5	262.7	275.3	278.7
Other beef and veal (12/77 = 100)	152.5	160.3	157.7	157.8	156.1	159.2	159.9	152.4	159.5	156.9	156.7	154.9	158.5	159.2
Pork	190.4	228.2	223.6	221.6	217.4	217.3	221.2	190.5	228.5	223.2	221.3	216.7	216.3	221.3
Bacon	173.1	228.1	221.7	218.5	209.0	212.7	216.5	175.6	232.5	225.7	221.6	210.0	212.2	220.5
Chops	182.7	211.6	210.3	209.3	209.2	203.7	209.8	180.6	210.2	207.6	206.9	206.3	201.5	209.8
Ham other than canned (12/77 = 100)	87.8	104.1	100.0	98.7	95.2	97.2	98.0	86.1	102.2	98.2	96.3	92.6	93.8	95.1
Sausage	246.2	287.8	282.3	281.0	277.4	277.7	278.9	249.6	288.5	282.0	282.7	280.1	278.5	278.7
Canned ham	208.1	241.1	238.0	236.6	230.1	230.5	229.8	210.1	243.3	240.6	237.9	230.8	231.4	230.1
Other pork (12/77 = 100)	106.3	127.4	125.4	124.2	123.4	122.7	126.7	105.9	127.9	125.0	124.3	123.8	122.4	127.7
Other meats	239.4	262.9	260.8	258.5	255.4	253.9	255.9	235.9	260.4	259.1	256.0	253.4	250.6	253.1
Frankfurters	230.9	262.5	259.4	257.8	253.5	247.6	250.7	231.0	262.6	261.0	257.2	252.8	247.0	249.8
Bologna, liverwurst, and salami (12/77 = 100)	133.4	151.2	149.4	147.0	143.5	143.0	143.9	130.7	148.0	146.0	144.7	142.6	140.6	141.9
Other lunchmeats (12/77 = 100)	121.0	130.3	129.8	128.1	127.9	126.9	127.6	118.1	128.1	128.6	126.4	126.4	124.8	126.0
Lamb and organ meats (12/77 = 100)	137.6	145.0	144.1	144.7	143.1	145.3	145.6	139.3	147.8	146.5	146.0	143.8	145.9	147.1
Poultry	177.9	202.4	203.7	201.6	196.8	194.7	196.8	175.7	199.2	201.3	200.6	194.6	192.5	194.4
Fresh whole chicken	176.3	202.5	207.0	203.1	198.0	190.3	193.8	170.7	197.2	201.7	200.9	194.1	187.0	190.3
Fresh and frozen chicken parts (12/77 = 100)	115.7	132.7	131.9	131.6	127.5	127.5	128.3	115.6	131.3	131.9	130.1	125.8	126.6	127.0
Other poultry (12/77 = 100)	115.9	128.7	128.5	127.6	125.9	128.3	128.9	116.1	127.9	127.8	128.9	126.3	127.5	128.2
Fish and seafood	329.1	358.0	355.0	358.8	359.7	353.2	352.1	324.9	350.0	349.5	351.5	353.7	349.9	349.8
Canned fish and seafood (12/77 = 100)	127.3	137.4	138.0	138.9	138.8	139.2	139.3	125.7	135.3	135.9	136.2	136.6	137.8	137.9
Fresh and frozen fish and seafood (12/77 = 100)	124.2	135.7	133.5	135.3	135.9	131.8	131.0	122.6	132.0	131.4	132.5	133.6	130.5	130.4
Eggs	147.9	190.2	188.2	180.5	184.3	170.5	172.1	147.2	190.1	187.0	180.5	185.5	171.5	173.0
Dairy products	227.2	240.1	242.1	242.6	243.5	243.8	243.8	227.8	240.7	242.5	242.7	243.8	243.9	243.9
Fresh milk and cream (12/77 = 100)	127.1	133.0	134.0	134.3	134.6	134.9	134.8	127.4	133.4	134.1	134.1	134.7	134.7	134.5
Fresh whole milk	208.6	218.2	219.3	219.9	220.4	220.8	220.7	208.7	218.5	219.3	219.0	220.2	220.4	220.0
Other fresh milk and cream (12/77 = 100)	126.0	132.1	134.2	134.4	134.5	134.7	134.6	127.2	132.9	134.4	134.5	135.2	134.8	135.1
Processed dairy products (12/77 = 100)	130.4	139.6	140.8	141.1	142.0	141.9	142.0	130.7	140.1	141.6	141.8	142.6	142.6	142.9
Butter	225.0	242.7	242.2	243.0	244.3	245.2	245.1	227.2	246.5	246.0	246.4	247.7	247.6	248.7
Cheese (12/77 = 100)	128.8	138.2	139.2	139.8	140.6	140.5	140.5	129.0	138.3	139.6	140.0	140.5	140.6	140.9
Ice cream and related products (12/77 = 100)	133.7	143.6	145.9	145.3	146.7	146.2	146.4	133.8	144.3	146.8	146.1	147.8	147.8	147.8
Other dairy products (12/77 = 100)	127.3	133.3	134.5	135.1	135.7	136.1	136.3	127.4	132.9	135.0	136.1	136.1	136.4	136.8
Fruits and vegetables	250.1	257.6	267.3	278.2	281.9	276.8	278.1	250.2	255.1	266.5	275.0	280.0	274.3	275.3
Fresh fruits and vegetables	260.0	263.9	278.1	293.9	296.4	284.4	285.2	261.4	260.3	277.6	289.4	294.5	281.8	281.0
Fresh fruits	273.9	245.6	256.8	265.2	271.6	276.6	278.9	274.9	241.1	254.4	259.0	268.6	271.5	272.1
Apples	293.3	220.8	217.1	227.9	231.1	235.4	239.9	297.4	216.8	218.2	225.7	232.1	233.7	241.0
Bananas	242.6	237.8	256.9	264.1	266.8	266.3	260.5	237.7	228.9	249.4	258.8	262.2	264.2	259.0
Oranges	264.4	272.9	284.9	287.4	287.5	274.1	287.1	251.0	258.9	269.4	268.4	274.3	261.1	274.0
Other fresh fruits (12/77 = 100)	143.7	127.8	135.9	141.1	147.1	154.9	154.4	146.5	128.4	137.9	139.9	147.6	153.3	149.9
Fresh vegetables	247.0	281.1	298.0	320.8	319.6	291.7	291.1	249.4	277.8	298.7	316.9	318.0	291.1	289.0
Potatoes	246.3	326.1	350.2	363.9	378.1	384.4	414.3	244.4	322.9	347.1	359.6	369.8	378.1	402.7
Lettuce	238.8	234.2	220.4	225.2	226.9	252.5	238.7	241.7	229.9	225.6	219.3	231.5	255.6	237.1
Tomatoes	230.6	247.2	312.8	367.8	375.3	200.2	205.2	228.6	239.8	308.6	354.0	370.7	193.8	200.8
Other fresh vegetables (12/77 = 100)	140.													



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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981					1980	1981						
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
<b>FOOD AND BEVERAGES—Continued</b>														
<b>Food—Continued</b>														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100) . . . . .	116.6	126.0	128.2	128.4	130.2	131.5	134.6	115.2	124.5	126.5	126.3	129.0	130.1	133.6
Other canned and dried vegetables (12/77=100) . . . . .	115.9	123.4	124.7	126.4	128.7	129.8	131.4	114.2	122.1	123.5	125.3	127.1	128.0	129.7
Other foods at home	301.8	320.5	323.0	324.1	324.7	323.7	323.6	301.4	320.8	323.6	325.2	325.4	324.8	324.5
Sugar and sweets	342.0	385.4	385.4	383.2	375.8	367.1	361.3	342.9	387.3	387.7	384.6	377.8	368.1	363.0
Candy and chewing gum (12/77=100) . . . . .	130.5	138.6	141.1	142.8	144.1	145.1	145.2	130.8	139.4	142.0	143.6	145.1	145.8	146.5
Sugar and artificial sweeteners (12/77=100) . . . . .	180.3	222.8	217.7	209.7	195.5	178.4	168.2	180.7	223.4	217.9	209.6	196.0	179.2	169.3
Other sweets (12/77=100) . . . . .	125.8	137.1	137.7	139.3	139.8	141.4	142.6	124.6	135.5	137.3	138.2	138.7	139.7	140.8
Fats and oils (12/77=100) . . . . .	240.0	260.4	267.3	268.9	270.1	270.7	269.6	240.5	261.8	268.9	270.5	270.4	270.9	269.5
Margarine	249.0	256.9	256.8	255.7	256.1	256.1	256.1	249.4	257.4	258.3	257.7	256.1	256.7	256.0
Nondairy substitutes and peanut butter (12/77=100) . . . . .	123.1	156.0	171.8	179.3	182.4	182.7	181.8	123.5	156.4	172.7	180.0	182.3	181.6	180.5
Other fats, oils, and salad dressings (12/77=100) . . . . .	124.9	130.3	131.0	129.9	129.8	130.4	129.6	124.9	131.0	131.4	130.3	129.7	130.4	129.6
Nonalcoholic beverages	395.9	409.7	411.9	412.2	414.4	412.3	412.8	395.1	410.7	413.6	415.4	415.8	414.6	414.6
Cola drinks, excluding diet cola . . . . .	267.8	290.8	295.3	295.9	298.0	295.7	297.0	267.1	288.2	293.4	295.4	294.9	293.7	294.1
Carbonated drinks, including diet cola (12/77=100) . . . . .	128.3	137.5	140.1	140.5	141.8	140.6	140.8	125.2	135.0	137.8	138.7	139.8	139.4	139.3
Roasted coffee	432.4	380.7	364.9	359.4	356.7	354.4	353.1	429.2	376.4	363.0	355.0	352.5	350.5	348.5
Freeze dried and instant coffee . . . . .	380.2	354.6	345.3	340.8	339.5	339.1	335.2	378.7	355.8	347.0	343.9	340.9	340.2	337.1
Other noncarbonated drinks (12/77=100) . . . . .	121.8	129.1	130.8	132.4	133.5	134.0	134.5	120.8	129.6	130.9	132.7	133.5	133.9	134.4
Other prepared foods	230.9	244.9	246.9	249.4	251.2	252.9	254.4	230.8	245.1	247.1	250.0	252.4	254.7	255.8
Canned and packaged soup (12/77=100) . . . . .	122.9	128.1	128.7	128.4	129.3	131.5	132.6	123.7	127.9	129.3	129.2	129.8	132.1	133.5
Frozen prepared foods (12/77=100) . . . . .	132.0	138.6	140.0	142.3	142.3	141.6	142.2	130.8	136.9	137.8	139.6	139.8	139.6	140.8
Snacks (12/77=100) . . . . .	127.2	141.1	142.3	143.9	145.6	145.9	147.2	127.9	141.7	143.5	145.5	148.1	149.1	149.1
Seasonings, olives, pickles, and relish (12/77=100) . . . . .	127.5	135.2	137.2	139.1	139.9	140.0	141.1	127.3	134.5	136.3	137.9	138.7	139.3	140.3
Other condiments (12/77=100) . . . . .	128.8	134.4	135.8	138.1	139.2	141.1	140.8	129.9	136.3	137.3	140.0	141.7	143.6	143.2
Miscellaneous prepared foods (12/77=100) . . . . .	128.6	135.4	135.8	135.9	136.7	138.6	139.3	128.3	135.2	136.0	136.2	137.7	139.6	139.9
Other canned and packaged prepared foods (12/77=100) . . . . .	125.2	131.6	132.4	134.1	135.1	136.6	137.7	124.1	132.1	132.4	134.4	135.9	137.2	138.5
Food away from home	266.6	280.9	284.7	286.1	288.2	289.3	290.6	269.9	284.2	287.3	288.6	290.7	291.9	293.5
Lunch (12/77=100) . . . . .	129.3	137.2	138.6	139.2	140.7	141.0	141.5	130.7	138.5	139.8	140.3	141.4	141.8	142.8
Dinner (12/77=100) . . . . .	129.5	136.2	138.2	138.8	139.4	139.9	140.7	131.0	138.2	139.4	140.1	141.1	141.7	142.6
Other meals and snacks (12/77=100) . . . . .	129.0	134.7	137.0	137.9	138.8	139.9	140.3	131.1	136.4	138.5	139.3	140.1	141.1	141.3
<b>Alcoholic beverages</b>	186.4	193.7	195.9	197.1	197.8	199.1	199.8	188.0	195.5	197.6	198.7	199.4	201.2	202.1
Alcoholic beverages at home (12/77=100) . . . . .	121.4	126.1	127.4	128.1	128.5	129.3	129.7	122.7	127.6	128.8	129.6	130.0	131.1	131.5
Beer and ale	188.2	194.5	197.6	198.2	199.7	201.4	202.0	188.8	194.5	197.2	198.5	199.8	201.8	202.4
Whiskey	134.7	140.0	140.0	141.6	141.3	142.5	143.0	135.4	141.5	142.0	142.3	142.3	143.2	144.0
Wine	211.5	221.7	224.0	224.3	224.7	223.9	224.6	213.7	229.4	231.6	233.6	233.2	234.3	233.4
Other alcoholic beverages (12/77=100) . . . . .	108.7	113.7	113.9	115.0	114.9	115.5	116.1	108.9	113.2	113.3	114.0	114.1	114.6	115.7
Alcoholic beverages away from home (12/77=100) . . . . .	122.3	127.6	129.7	131.1	131.6	132.6	133.1	122.5	127.4	129.4	129.9	130.6	132.0	133.4
<b>HOUSING</b>	266.7	279.1	280.9	282.6	284.8	288.5	292.2	266.9	279.1	280.7	282.2	284.3	288.1	291.9
<b>Shelter</b>	286.3	300.1	300.5	301.6	303.8	308.4	312.6	288.0	301.7	301.7	302.6	304.6	309.4	313.7
Rent, residential	191.1	200.9	201.9	203.0	204.2	205.9	206.8	190.8	200.6	201.6	202.7	203.9	205.5	206.4
Other rental costs	264.2	273.9	278.5	283.6	285.9	286.4	289.5	263.9	273.6	278.3	283.5	285.8	286.2	289.7
Lodging while out of town	282.1	291.5	297.4	304.8	307.5	307.2	311.8	280.8	289.9	296.0	302.2	306.0	305.5	310.6
Tenants' insurance (12/77=100) . . . . .	122.6	127.6	129.3	130.1	131.2	131.9	133.1	122.7	128.0	129.9	130.8	131.6	132.3	133.4
Homeownership	320.4	335.8	335.8	336.8	339.3	345.0	350.4	323.4	338.6	338.2	338.8	341.1	347.1	352.7
Home purchase	252.6	266.2	263.0	261.1	260.7	263.0	266.6	253.0	266.4	262.7	260.2	259.7	262.2	266.2
Financing, taxes, and insurance	416.1	435.2	437.1	441.1	447.1	458.3	467.2	422.0	441.3	442.6	446.4	452.6	464.3	473.8
Property insurance	351.8	369.8	373.1	375.6	378.5	383.7	386.6	352.7	373.2	376.6	379.9	382.5	387.1	388.1
Property taxes	187.7	196.0	198.5	199.0	199.9	199.8	200.3	189.4	197.9	200.6	201.0	201.7	201.7	202.2
Contracted mortgage interest cost	538.9	563.5	565.0	570.9	579.8	596.9	610.4	541.5	565.9	566.5	572.0	580.9	598.6	612.9
Mortgage interest rates	210.3	209.0	211.9	216.0	219.5	224.0	226.4	210.8	209.4	212.3	216.7	220.3	224.9	227.2
Maintenance and repairs	285.9	296.8	302.8	306.1	309.3	312.9	315.5	283.8	294.1	299.9	302.7	304.5	307.3	308.2
Maintenance and repair services	310.6	321.3	328.7	332.6	337.0	341.2	344.4	308.5	319.8	327.7	331.3	334.1	337.6	338.7
Maintenance and repair commodities	228.0	239.7	242.4	243.9	244.4	246.3	247.6	228.8	236.7	238.6	239.9	239.7	241.1	241.5
Paint and wallpaper, supplies, tools, and equipment (12/77=100) . . . . .	131.3	139.5	141.6	143.7	143.4	143.9	145.3	130.9	135.1	136.9	138.5	138.8	137.7	138.4
Lumber, awnings, glass, and masonry (12/77=100) . . . . .	118.9	123.4	124.0	123.3	124.3	125.1	124.7	118.5	122.7	122.3	122.4	123.1	123.7	122.7
Plumbing, electrical, heating, and cooling supplies (12/77=100) . . . . .	119.9	125.2	127.3	127.6	127.9	130.7	131.2	123.8	124.5	127.0	127.8	127.9	128.1	128.5
Miscellaneous supplies and equipment (12/77=100) . . . . .	119.1	124.7	125.2	125.9	126.4	127.6	128.5	120.7	127.9	127.8	128.8	129.9	130.8	131.7
<b>Fuel and other utilities</b>	282.2	296.7	304.5	308.4	310.5	314.9	320.2	283.0	297.5	305.6	309.4	311.4	315.7	321.2
<b>Fuels</b>	355.8	375.4	387.4	393.7	396.5	403.3	411.7	355.8	375.0	387.3	393.4	396.2	402.5	411.2
Fuel oil, coal, and bottled gas	558.7	625.9	675.6	693.4	690.6	685.8	682.0	559.8	627.9	678.5	696.3	693.7	688.6	685.1
Fuel oil	583.2	656.0	712.0	730.9	727.0	720.6	715.7	583.3	657.1	714.2	733.2	729.4	723.1	718.4
Other fuels (6/78 = 100) . . . . .	140.1	152.3	157.5	161.5	162.5	163.6	164.3	141.9	154.1	159.4	162.9	164.2	164.7	165.5
Gas (piped) and electricity	308.8	318.5	322.9	326.7	330.6	339.6	350.2	308.5	317.7	322.1	325.9	329.6	338.1	349.0
Electricity	261.9	266.9	271.3	273.9	277.3	281.9	296.7	262.3	266.5	271.1	273.5	276.8	281.2	296.6
Utility (piped) gas	366.7	385.3	389.0	395.2	399.4	416.5	416.9	364.9	383.3	386.8	392.8	397.2	413.0	413.2

**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)							
	1980	1981					1980	1981						
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
<b>HOUSING—Continued</b>														
<b>Fuel and other utilities—Continued</b>														
Other utilities and public services	164.9	171.9	173.6	174.0	175.1	176.2	177.1	164.9	172.0	173.9	174.4	175.4	176.6	177.3
Telephone services	135.5	141.1	142.4	142.5	143.4	144.0	143.5	135.4	141.1	142.5	142.6	143.4	144.1	143.6
Local charges (12/77 = 100)	105.3	111.6	113.5	113.6	114.8	115.5	114.9	105.1	111.7	113.6	113.7	114.9	115.7	115.1
Interstate toll calls (12/77 = 100)	99.5	101.8	101.8	101.8	101.8	101.8	101.8	99.5	101.9	101.9	101.9	101.9	101.9	101.9
Intrastate toll calls (12/77 = 100)	99.6	101.0	101.2	101.2	101.4	101.7	101.5	99.5	100.8	101.0	101.0	101.2	101.5	101.3
Water and sewerage maintenance	259.3	271.4	274.7	277.1	278.4	282.3	291.2	260.5	272.5	276.3	279.0	280.3	284.7	292.5
<b>Household furnishings and operations</b>	205.5	212.6	214.9	216.9	219.2	220.1	221.1	202.9	209.7	211.7	213.7	215.9	216.8	217.8
Housefurnishings	174.6	178.7	180.8	182.6	183.9	184.2	185.2	172.9	176.9	178.5	180.2	181.6	182.1	182.8
Textile housefurnishings	189.4	191.9	195.1	199.8	200.5	198.3	202.5	189.6	193.4	196.9	201.4	202.9	202.3	204.4
Household linens (12/77 = 100)	116.0	114.6	118.6	123.1	123.0	122.3	125.1	116.2	117.0	121.4	124.1	125.0	124.7	125.7
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	120.1	124.9	124.8	126.1	127.1	125.0	127.4	120.5	124.6	124.4	127.2	128.2	127.7	129.5
Furniture and bedding	193.6	196.6	199.3	201.6	203.7	204.2	204.6	190.8	193.6	195.6	198.0	200.0	200.6	200.1
Bedroom furniture (12/77 = 100)	126.2	128.3	131.3	133.2	134.5	133.4	134.6	123.1	125.1	127.7	129.4	130.7	129.2	129.2
Sofas (12/77 = 100)	113.0	114.2	114.5	115.8	116.5	117.0	116.2	112.7	113.2	113.2	114.1	114.9	115.8	116.0
Living room chairs and tables (12/77 = 100)	110.6	113.1	115.9	116.5	116.6	117.5	116.9	111.7	114.3	115.2	116.7	117.6	119.1	118.2
Other furniture (12/77 = 100)	127.1	128.7	129.1	130.8	133.4	134.7	135.4	123.9	125.6	126.6	128.3	130.1	131.2	130.5
Appliances including TV and sound equipment	140.2	143.1	143.9	144.2	145.3	145.5	146.3	140.1	142.7	142.9	143.4	144.2	144.4	145.6
Television and sound equipment (12/77 = 100)	105.6	107.4	107.9	108.0	108.6	108.3	108.2	105.2	106.5	106.6	106.4	107.1	106.9	107.3
Television	104.2	105.6	105.7	105.6	106.0	105.4	105.3	103.1	104.2	104.2	104.3	104.7	104.4	104.3
Sound equipment (12/77 = 100)	107.9	110.2	111.0	111.2	112.1	112.1	111.9	108.0	109.4	109.6	109.3	110.2	110.1	110.9
Household appliances	163.4	167.2	168.2	168.9	170.4	171.3	173.2	163.6	167.6	167.8	169.0	169.9	170.6	172.6
Refrigerators and home freezers	163.2	168.0	168.4	168.5	170.6	170.9	172.4	166.8	171.7	172.3	172.7	174.7	175.8	177.1
Laundry equipment (12/77 = 100)	119.1	123.6	123.7	124.5	126.1	126.2	128.0	118.9	121.9	122.8	124.3	125.7	125.3	127.1
Other household appliances (12/77 = 100)	112.7	114.2	115.4	115.9	116.6	117.6	118.9	111.7	114.0	113.7	114.5	114.4	115.2	116.6
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	111.2	114.8	115.1	115.1	115.8	117.2	118.4	111.4	115.7	114.2	115.2	113.9	115.1	116.5
Office machines, small electric appliances, and air conditioners (12/77 = 100)	114.4	113.6	115.7	116.9	117.4	118.0	119.4	112.0	112.0	113.1	113.7	115.0	115.3	116.7
Other household equipment (12/77 = 100)	120.2	125.6	127.9	129.1	130.0	130.7	131.0	118.5	123.8	125.6	126.9	127.9	129.0	129.3
Floor and window coverings, infants', laundry, cleaning, and outdoor equipment (12/77 = 100)	120.2	125.7	128.7	130.7	131.4	132.2	132.1	114.3	118.9	120.8	123.2	124.4	125.1	125.3
Clocks, lamps, and decor items (12/77 = 100)	118.8	122.3	124.1	125.7	125.6	124.4	124.6	115.9	119.2	121.7	121.7	120.9	120.9	121.9
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	125.4	131.9	134.8	135.6	137.1	138.8	139.6	122.2	128.0	131.0	132.1	134.1	136.0	136.0
Lawn equipment, power tools, and other hardware (12/77 = 100)	113.7	118.7	119.9	120.8	121.5	122.5	122.6	117.6	123.8	123.8	125.1	125.9	127.0	127.1
Housekeeping supplies	245.4	259.5	262.8	264.2	266.9	269.0	269.8	243.0	257.5	260.1	261.2	263.4	265.5	266.9
Soaps and detergents	234.9	255.6	256.2	255.3	259.4	262.6	266.0	232.3	253.4	254.3	253.8	256.7	260.2	263.6
Other laundry and cleaning products (12/77 = 100)	121.1	128.8	129.3	129.7	131.0	132.8	133.4	120.8	129.0	129.6	130.3	130.4	131.5	132.3
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	129.4	137.3	138.4	137.9	138.4	137.8	137.6	131.5	139.2	139.2	138.1	138.5	137.9	138.2
Stationery, stationery supplies, and gift wrap (12/77 = 100)	116.9	119.9	121.4	122.3	123.1	125.1	125.8	116.5	120.7	122.4	123.7	124.8	126.8	127.2
Miscellaneous household products (12/77 = 100)	124.4	132.6	135.9	137.3	138.1	138.4	139.5	122.1	129.3	132.2	133.2	134.5	135.0	136.1
Lawn and garden supplies (12/77 = 100)	126.8	130.0	134.0	136.6	139.1	140.6	138.4	121.0	122.7	126.1	128.5	131.1	132.4	131.3
Housekeeping services	269.1	279.6	281.6	284.8	289.9	291.6	292.9	267.0	276.4	279.4	283.3	288.6	289.9	291.7
Postage	257.3	257.3	257.3	274.3	308.0	308.0	308.0	257.3	257.3	257.3	274.2	308.1	308.1	308.1
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	130.5	137.0	138.2	139.0	140.7	141.6	141.9	129.2	134.3	137.8	139.0	140.2	140.7	141.8
Appliance and furniture repair (12/77 = 100)	117.7	122.4	123.6	124.5	125.2	125.9	126.3	117.4	121.5	122.4	123.8	124.3	124.6	125.4
<b>APPAREL AND UPKEEP</b>	177.2	181.1	182.0	185.1	186.4	186.4	185.8	176.0	180.8	181.8	184.3	186.0	186.2	185.8
<b>Apparel commodities</b>	169.7	172.6	173.2	176.3	177.6	177.2	176.4	168.8	172.6	173.3	175.8	177.5	177.6	177.0
Apparel commodities less footwear	166.4	168.9	169.6	172.7	174.0	173.3	172.5	165.3	168.7	169.6	172.3	173.9	173.8	173.0
Men's and boys'	166.8	171.1	171.6	175.0	175.6	176.8	176.6	168.1	171.7	172.2	174.9	176.1	177.3	177.2
Men's (12/77 = 100)	104.8	107.5	107.8	110.2	110.5	111.2	111.0	105.5	107.9	108.2	110.1	110.9	111.8	111.6
Suits, sport coats, and jackets (12/77 = 100)	99.7	99.9	100.5	103.2	104.1	104.7	104.3	95.4	95.1	96.1	98.5	98.3	99.3	98.4
Coats and jackets (12/77 = 100)	96.3	95.2	95.6	97.9	98.1	97.9	98.1	97.1	97.4	96.0	98.9	99.6	100.5	101.2
Furnishings and special clothing (12/77 = 100)	118.2	123.9	125.3	127.2	127.5	129.2	129.7	115.4	119.9	120.2	121.5	122.7	123.9	124.1
Shirts (12/77 = 100)	110.8	115.4	114.8	118.0	117.0	118.3	117.9	112.9	116.7	116.8	119.2	119.5	120.3	120.4
Dungarees, jeans, and trousers (12/77 = 100)	99.5	103.4	102.7	104.7	105.4	105.5	105.0	105.0	108.2	108.7	110.0	111.5	112.2	111.8
Boys' (12/77 = 100)	109.5	112.0	112.6	113.7	114.5	115.1	115.4	109.8	111.6	111.9	112.9	113.9	114.2	114.3
Coats, jackets, sweaters, and shirts (12/77 = 100)	104.6	104.8	104.3	106.5	107.2	108.8	108.7	107.8	107.9	107.0	109.5	110.9	111.8	109.8
Furnishings (12/77 = 100)	114.6	119.1	119.1	121.2	121.5	121.4	123.9	113.3	115.8	116.1	117.4	118.2	117.4	119.5
Suits, trousers, sport coats, and jackets (12/77 = 100)	111.3	114.8	116.6	116.5	117.4	117.5	117.3	110.1	112.9	114.2	113.9	114.8	114.8	115.9
Women's and girls'	153.0	152.1	153.4	157.5	158.8	157.2	155.4	151.2	153.9	155.4	158.9	160.7	160.0	158.1
Women's (12/77 = 100)	101.7	100.8	101.9	104.4	105.0	103.9	102.7	100.8	102.3	103.5	105.5	106.7	106.2	104.9
Coats and jackets	158.1	150.4	160.7	157.9	157.6	152.8	149.5	155.2	162.1	159.1	156.9	156.8	155.8	148.9
Dresses	163.3	155.5	156.9	166.4	167.8	164.8	163.7	152.5	147.3	150.5	154.3	159.8	159.7	156.6
Separates and sportswear (12/77 = 100)	99.5	98.2	97.1	99.3	100.2	99.0	98.0	99.2	100.1	99.7	101.6	102.6	101.5	101.0
Underwear, nightwear, and hosiery (12/77 = 100)	112.1	116.0	116.4	117.8	119.3	119.7	119.8	112.3	115.6	116.0	117.7	119.1	119.5	120.0
Suits (12/77 = 100)	86.5	87.8	90.0	93.0	91.6	90.7	86.3	91.7	95.5	103.6	109.5	108.0	109.9	103.6
Girls' (12/77 = 100)	102.1	102.9	102.8	106.4	108.6	107.9	106.4	99.6	102.5	102.7	106.4	107.8	107.1	106.2
Coats, jackets, dresses, and suits (12/77 = 100)	98.1	96.0	94.4	101.2	106.4	104.1	100.4	93.8	94.4	93.5	98.4	101.3	98.8	98.1
Separates and sportswear (12/77 = 100)	100.7	103.6	104.2	106.2	106.8	106.9	105.9	98.5	104.4	105.8	109.1	109.5	109.6	108.1
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	111.4	113.1	113.9	115.6	115.5	116.1	117.2	110.9	112.2	112.5	114.6	115.4	115.9	116.2

**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)							
	1980	1981					1980	1981						
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
<b>APPAREL AND UPKEEP—Continued</b>														
<b>Apparel commodities—Continued</b>														
Apparel commodities less footwear—Continued														
Infants' and toddlers' .....	240.9	249.7	254.3	255.3	259.2	256.9	260.0	246.8	256.9	264.0	266.4	269.3	269.9	273.0
Other apparel commodities .....	205.3	214.2	212.3	212.2	214.1	212.1	212.2	201.0	205.3	204.4	204.5	205.6	204.1	204.8
Sewing materials and notions (12/77 = 100) .....	110.2	111.9	112.2	113.3	114.8	114.3	114.5	110.9	110.8	112.2	113.3	114.3	113.4	113.2
Jewelry and luggage (12/77 = 100) .....	142.2	149.7	147.9	147.3	148.4	146.8	146.8	138.6	142.8	141.3	140.9	141.4	140.5	141.2
Footwear .....	189.0	194.9	194.9	197.4	199.3	201.0	200.4	188.9	195.5	194.9	195.9	198.4	200.0	200.6
Men's (12/77 = 100) .....	121.3	124.4	125.0	125.2	126.8	127.8	127.7	123.6	126.1	125.7	125.4	128.0	128.7	129.5
Boys' and girls' (12/77 = 100) .....	121.0	125.7	125.3	127.6	128.2	129.3	129.1	121.3	127.0	126.2	127.3	126.7	127.7	128.6
Women's (12/77 = 100) .....	114.6	118.1	117.9	120.0	121.3	122.2	121.6	111.7	117.9	115.9	117.0	119.3	120.5	120.2
<b>Apparel services</b> .....	233.6	246.3	249.9	252.4	254.3	256.4	257.8	231.8	245.5	248.7	251.5	252.7	254.2	255.7
Laundry and drycleaning other than coin operated (12/77 = 100) .....	137.5	145.3	147.6	149.6	150.9	152.2	153.2	137.3	145.5	147.3	149.3	150.4	151.5	152.5
Other apparel services (12/77 = 100) .....	125.5	131.7	133.3	133.7	134.5	135.6	136.0	123.9	131.1	132.9	133.9	134.0	134.5	135.0
<b>TRANSPORTATION</b>														
<b>Private</b> .....	249.7	264.7	270.9	273.5	275.3	277.8	279.9	250.6	265.7	272.1	274.4	276.3	278.9	281.0
New cars .....	178.5	185.3	184.8	182.9	186.1	190.9	192.2	179.4	185.7	185.0	182.7	186.2	191.2	192.5
Used cars .....	200.7	234.0	234.3	235.4	239.1	245.2	252.9	200.8	234.0	234.4	235.4	239.1	245.2	252.9
Gasoline .....	376.2	385.2	410.8	420.7	419.3	416.5	414.4	377.6	386.6	412.5	422.3	420.8	417.7	415.6
Automobile maintenance and repair .....	267.3	282.7	285.4	287.7	289.0	290.8	291.9	268.0	283.2	285.4	288.2	289.7	291.3	292.6
Body work (12/77 = 100) .....	131.4	137.3	139.2	140.3	140.8	141.5	142.3	130.8	137.3	139.2	140.2	140.7	141.3	142.2
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100) .....	127.5	135.8	136.8	137.7	138.0	138.7	138.9	128.8	137.5	138.3	140.2	140.5	141.2	141.7
Maintenance and servicing (12/77 = 100) .....	126.1	132.5	133.7	134.8	135.5	136.5	137.1	126.2	132.7	133.5	134.7	135.7	136.4	136.9
Power plant repair (12/77 = 100) .....	125.9	134.4	135.5	137.0	137.8	138.6	139.2	126.2	133.5	134.7	135.9	136.7	137.7	138.3
Other private transportation .....	225.0	232.4	234.2	234.7	236.3	238.9	241.0	227.3	235.0	236.9	237.3	239.2	241.9	243.9
Other private transportation commodities .....	195.5	203.7	205.8	206.2	208.1	208.6	208.5	196.8	206.2	207.5	208.0	210.4	211.7	211.1
Motor oil, coolant, and other products (12/77 = 100) .....	134.1	139.1	141.6	141.6	143.5	143.1	144.5	133.6	139.2	139.0	139.8	140.5	141.4	142.7
Automobile parts and equipment (12/77 = 100) .....	125.3	130.6	131.8	132.1	133.2	133.6	133.4	126.3	132.4	133.4	133.7	135.4	136.1	135.5
Tires .....	172.3	181.5	183.5	184.1	185.8	186.4	186.1	174.9	184.8	186.6	186.9	189.6	191.1	189.9
Other parts and equipment (12/77 = 100) .....	126.8	128.6	129.3	129.2	130.1	130.4	130.2	125.4	128.9	129.3	129.5	130.8	130.7	130.7
Other private transportation services .....	235.0	242.4	244.0	244.6	246.2	249.4	252.0	237.6	244.9	247.0	247.4	249.2	252.4	255.0
Automobile insurance .....	248.5	252.3	253.7	254.4	255.7	256.8	257.4	248.2	251.8	253.2	253.9	255.2	256.3	256.9
Automobile finance charges (12/77 = 100) .....	153.7	163.4	165.1	164.3	166.5	172.9	178.5	153.5	161.7	163.9	163.4	166.3	172.5	177.2
Automobile rental, registration, and other fees (12/77 = 100) .....	112.9	116.2	116.7	118.2	118.2	117.7	117.8	114.0	118.2	119.3	119.9	119.3	118.1	118.2
State registration .....	146.4	146.9	146.9	146.9	146.9	147.5	148.0	146.5	146.9	147.0	147.0	147.0	147.7	148.1
Drivers' licenses (12/77 = 100) .....	104.7	105.3	105.4	105.4	105.5	105.5	105.8	104.4	105.1	105.1	105.1	105.2	105.2	105.6
Vehicle inspection (12/77 = 100) .....	121.5	124.8	125.8	126.1	126.0	125.8	125.7	122.1	125.6	126.6	126.7	126.6	126.5	126.5
Other vehicle related fees (12/77 = 100) .....	126.1	133.7	134.7	138.4	138.4	136.3	136.3	132.7	144.1	147.2	148.9	147.1	142.8	142.6
<b>Public</b> .....	242.2	286.4	288.1	293.9	297.2	297.7	303.9	234.9	279.0	280.6	285.1	287.7	288.2	293.6
Airline fare .....	275.5	331.9	334.1	343.7	348.6	348.8	360.7	275.4	330.2	332.7	342.3	346.6	346.7	359.3
Intercity bus fare .....	293.8	310.7	312.8	323.2	329.1	333.4	337.6	293.6	310.6	312.2	323.9	323.0	333.0	336.8
Intracity mass transit .....	204.4	247.1	248.4	250.8	251.7	251.9	253.5	201.9	246.5	247.8	249.1	249.8	249.9	251.5
Taxi fare .....	262.0	271.0	271.4	273.8	279.9	280.4	281.7	267.6	277.5	277.7	280.5	287.4	287.9	289.2
Intercity train fare .....	255.2	276.4	276.5	276.7	277.2	296.7	304.1	255.5	276.8	276.9	277.1	277.5	298.5	304.6
<b>MEDICAL CARE</b>														
<b>Medical care commodities</b> .....	167.9	176.7	179.2	180.7	182.4	184.7	186.3	168.5	177.5	179.6	181.2	183.4	185.9	187.3
Prescription drugs .....	154.8	162.7	165.0	166.5	168.5	170.4	172.3	155.8	163.4	165.3	166.8	169.2	171.6	173.5
Anti-infective drugs (12/77 = 100) .....	120.5	127.7	129.3	130.5	130.2	130.3	132.2	122.0	128.6	129.5	131.0	132.4	132.7	134.3
Tranquilizers and sedatives (12/77 = 100) .....	124.9	130.7	131.9	132.8	134.4	136.0	137.3	124.2	129.4	130.7	131.5	133.3	135.2	136.5
Circulatories and diuretics (12/77 = 100) .....	115.1	120.6	121.9	122.2	123.9	124.9	125.5	117.3	121.3	122.9	123.7	125.3	126.1	126.8
Hormones, diabetic drugs, biologicals, and prescription and supplies (12/77 = 100) .....	134.3	143.9	147.4	148.2	151.2	154.6	157.2	133.7	143.8	146.5	147.8	150.9	154.5	158.1
Pain and symptom control drugs (12/77 = 100) .....	124.2	128.7	130.9	132.7	134.5	136.5	137.7	125.5	131.4	133.3	134.1	135.8	138.2	138.9
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100) .....	118.6	123.2	124.5	126.3	128.6	130.2	131.1	120.2	123.8	125.2	126.5	128.8	131.2	132.0
Nonprescription drugs and medical supplies (12/77 = 100) .....	120.6	127.1	128.9	129.9	130.9	132.6	133.5	121.0	127.9	129.4	130.5	131.9	133.6	134.4
Eyeglasses (12/77 = 100) .....	118.2	121.5	123.1	124.6	125.1	125.3	125.9	117.3	121.1	122.3	122.6	123.4	124.1	124.7
Internal and respiratory over-the-counter drugs .....	187.3	199.3	202.7	204.2	205.9	209.1	211.5	188.4	200.4	203.0	205.5	208.0	211.0	212.6
Nonprescription medical equipment and supplies (12/77 = 100) .....	117.5	123.6	124.5	125.0	126.2	128.6	128.6	117.5	125.1	126.5	127.1	128.2	130.5	130.7
<b>Medical care services</b> .....	285.9	302.1	305.2	307.5	309.8	311.7	314.4	287.3	304.3	307.4	310.2	312.2	313.6	315.8
Professional services .....	251.8	264.7	267.2	269.6	271.7	273.8	275.8	255.1	268.7	271.6	274.2	276.2	278.0	279.4
Physicians' services .....	269.2	283.9	287.7	290.3	292.2	295.5	297.5	273.9	290.0	293.9	296.3	297.9	300.3	302.4
Dental services .....	240.3	251.4	252.8	254.9	257.1	257.7	260.2	243.1	254.9	257.0	259.8	262.2	263.3	264.0
Other professional services (12/77 = 100) .....	122.9	129.3	130.0	131.5	132.6	133.7	134.2	122.2	127.6	128.5	129.9	131.3	132.1	132.6
Other medical care services .....	327.2	347.3	351.1	353.4	355.9	357.6	361.1	326.5	347.8	351.3	354.4	356.2	357.1	360.3
Hospital and other medical services (12/77 = 100) .....	131.4	144.5	146.1	147.1	148.1	148.3	149.6	130.3	143.7	145.2	146.7	147.3	147.3	148.6
Hospital room .....	412.6	453.8	458.2	460.9	465.0	465.1	470.4	408.5	451.9	455.9	459.2	461.4	461.3	467.1
Other hospital and medical care services (12/77 = 100) .....	130.6	143.7	145.5	146.7	147.3	147.6	148.7	129.7	142.7	144.4	146.3	146.8	146.8	147.6

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980	1981					1980	1981						
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
<b>ENTERTAINMENT</b>	205.3	214.4	216.7	218.2	219.2	220.3	220.8	204.0	212.2	215.0	216.1	217.0	217.7	218.3
<b>Entertainment commodities</b>	208.3	217.1	219.7	222.1	223.6	225.0	225.4	204.5	213.0	216.2	218.0	219.4	220.4	220.8
Reading materials (12/77 = 100)	122.3	130.0	130.9	133.2	134.1	135.6	136.2	121.8	129.6	130.7	133.0	134.1	135.6	136.1
Newspapers	239.0	249.7	253.8	256.6	262.5	264.1	264.9	238.2	249.4	254.0	256.7	262.5	264.0	264.8
Magazines, periodicals, and books (12/77 = 100)	123.1	133.4	132.9	136.2	134.8	137.1	137.9	122.8	133.5	132.9	136.3	134.8	137.3	138.2
Sporting goods and equipment (12/77 = 100)	118.6	123.5	124.7	126.1	127.5	127.2	126.8	114.2	118.5	119.3	120.3	120.9	120.8	120.4
Sport vehicles (12/77 = 100)	119.8	( <sup>1</sup> )	126.5	128.5	130.4	129.5	128.7	112.6	( <sup>1</sup> )	118.1	119.5	120.0	119.3	118.4
Indoor and warm weather sport equipment (12/77 = 100)	111.1	115.7	115.9	116.2	116.7	117.4	116.9	110.2	114.5	115.3	115.2	115.4	116.4	116.9
Bicycles	180.6	185.9	187.2	188.4	188.3	190.4	191.0	181.4	186.7	188.3	189.4	189.7	191.6	192.0
Other sporting goods and equipment (12/77 = 100)	114.6	120.9	120.6	121.2	122.6	122.4	122.7	115.3	119.2	119.2	119.3	121.1	121.5	122.2
Toys, hobbies, and other entertainment (12/77 = 100)	120.6	124.4	126.3	127.2	127.8	128.8	129.3	119.0	122.9	125.8	126.3	127.2	127.7	128.1
Toys, hobbies, and music equipment (12/77 = 100)	119.6	122.4	124.7	125.6	126.2	127.6	127.9	117.0	119.4	123.0	123.1	124.0	125.0	125.3
Photographic supplies and equipment (12/77 = 100)	121.8	121.5	122.6	124.0	125.4	125.8	126.2	121.1	122.3	124.4	125.5	126.7	126.1	126.5
Pet supplies and expense (12/77 = 100)	121.7	130.1	132.0	132.3	132.4	133.3	134.2	121.4	129.7	131.9	132.8	133.2	133.6	134.3
<b>Entertainment services</b>	201.4	210.9	213.0	213.0	213.4	214.0	214.7	204.3	212.0	213.9	213.8	213.9	214.2	215.1
Fees for participant sports (12/77 = 100)	120.9	128.1	129.4	129.8	130.7	130.7	131.3	121.5	127.8	129.0	129.6	130.2	130.5	131.4
Admissions (12/77 = 100)	120.4	124.7	125.3	125.3	124.5	125.1	124.9	123.2	125.2	126.2	125.9	124.7	125.0	124.8
Other entertainment services (12/77 = 100)	116.6	120.1	122.0	121.0	121.1	121.7	122.2	118.2	122.0	123.0	121.7	122.4	122.5	123.4
<b>OTHER GOODS AND SERVICES</b>	212.5	226.2	227.4	228.7	229.9	232.2	233.4	212.1	224.4	225.6	226.8	227.9	230.4	231.4
<b>Tobacco products</b>	203.4	211.9	212.3	212.5	213.3	218.2	219.1	203.6	211.7	211.9	212.4	213.2	217.8	218.4
Cigarettes	206.0	214.6	214.8	214.8	215.5	220.8	221.4	206.4	214.5	214.5	214.9	215.5	220.3	200.8
Other tobacco products and smoking accessories (12/77 = 100)	120.2	125.4	126.5	128.0	129.6	130.4	132.3	119.5	124.4	126.4	128.1	130.0	131.3	132.7
<b>Personal care</b>	212.4	222.5	224.6	226.9	228.7	230.5	232.1	211.8	221.1	223.2	225.1	226.4	228.4	229.7
Toilet goods and personal care appliances	205.1	216.9	219.5	222.4	223.9	226.6	228.6	204.5	216.1	218.5	220.9	222.5	225.5	227.2
Products for the hair, hairpieces, and wigs (12/77 = 100)	120.7	126.3	128.3	131.4	131.9	132.4	132.8	119.7	126.2	126.7	128.4	128.8	130.1	130.4
Dental and shaving products (12/77 = 100)	122.3	130.8	132.9	135.3	136.6	138.6	139.4	120.4	128.3	131.2	133.3	135.1	136.1	136.6
Cosmetics, bath and nail preparations, manure and eye makeup implements (12/77 = 100)	116.7	122.9	123.2	123.9	125.3	127.8	129.0	116.6	122.2	122.8	123.4	124.4	126.2	128.0
Other toilet goods and small personal care appliances (12/77 = 100)	117.6	125.5	127.5	128.3	128.4	129.8	132.0	119.1	126.6	129.0	130.7	131.3	134.0	135.4
Personal care services	219.6	228.3	230.0	231.7	233.7	234.7	236.0	219.1	226.3	228.1	229.4	230.5	231.5	232.5
Beauty parlor services for women	220.6	230.1	231.7	233.6	236.0	236.4	237.7	220.2	227.6	229.4	230.8	231.7	232.0	232.7
Haircuts and other barber shop services for men (12/77 = 100)	123.4	127.3	128.5	129.2	129.9	131.1	131.9	122.8	126.7	127.6	128.4	129.1	130.5	131.3
<b>Personal and educational expenses</b>	229.5	253.6	254.4	255.2	256.2	256.8	257.8	229.9	254.0	255.0	256.0	257.1	257.7	258.5
Schoolbooks and supplies	207.1	228.6	229.8	230.5	230.8	230.8	230.9	210.9	232.4	233.6	234.4	234.6	234.7	234.7
Personal and educational services	235.0	259.7	260.4	261.2	262.4	263.0	264.2	234.8	259.6	260.6	261.6	262.9	263.6	264.6
Tuition and other school fees	118.6	132.6	132.7	132.8	132.8	132.8	132.9	118.7	132.8	132.9	133.0	133.0	133.0	133.1
College tuition (12/77 = 100)	117.9	132.0	132.1	132.3	132.3	132.3	132.4	117.9	132.0	132.1	132.3	132.3	132.3	132.4
Elementary and high school tuition (12/77 = 100)	120.9	134.4	134.4	134.4	134.4	134.4	134.4	120.7	134.3	134.3	134.4	134.4	134.4	134.4
Personal expenses (12/77 = 100)	128.7	135.7	137.1	138.7	141.8	143.6	146.3	126.4	134.4	136.3	138.1	141.1	142.8	144.8
<b>Special indexes:</b>														
Gasoline, motor oil, coolant, and other products	370.9	379.9	404.8	414.5	413.2	410.4	408.4	372.2	381.2	406.3	415.9	414.5	411.5	409.5
Insurance and finance	353.8	368.9	370.7	373.6	378.1	386.6	393.4	354.0	368.8	370.4	373.0	377.6	386.1	393.1
Utilities and public transportation	244.8	259.4	262.3	265.2	267.9	272.4	278.5	244.0	258.0	261.0	263.6	266.1	270.6	276.7
Housekeeping and home maintenance services	298.6	309.5	314.6	318.3	323.1	326.2	328.6	296.7	307.4	313.4	317.2	321.1	323.8	325.1

<sup>1</sup> Not available.

c=corrected.

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

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000-1.250 million)			Size class C (75,000-385,000)			Size class D (75,000 or less)		
	1981			1981			1981			1981		
	Feb.	Apr.	June	Feb.	Apr.	June	Feb.	Apr.	June	Feb.	Apr.	June
<b>Northeast</b>												
<b>EXPENDITURE CATEGORY</b>												
All items .....	135.7	137.3	139.1	143.2	144.4	146.8	146.6	149.8	152.5	141.6	143.4	146.3
Food and beverages .....	135.2	136.8	137.5	137.6	138.3	139.2	139.8	141.4	141.1	134.8	135.2	136.1
Housing .....	138.0	139.1	142.1	149.0	149.1	153.2	156.3	161.5	166.0	147.5	149.7	154.0
Apparel and upkeep .....	114.9	116.9	116.2	114.0	118.2	118.9	119.5	121.7	123.1	119.1	123.3	122.9
Transportation .....	147.3	149.7	151.5	155.0	157.3	159.1	153.0	154.9	158.4	151.0	153.0	156.6
Medical care .....	130.5	132.9	134.8	131.2	132.9	134.0	132.1	133.8	137.8	134.4	135.9	137.2
Entertainment .....	124.6	126.3	127.9	127.5	130.2	129.6	124.2	125.8	125.9	126.7	128.5	130.2
Other goods and services .....	123.7	124.5	125.9	128.5	130.4	132.1	131.1	132.6	134.1	126.5	127.1	128.8
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities .....	137.0	137.9	139.0	144.3	145.0	146.5	144.6	147.1	148.1	141.7	143.3	145.0
Commodities less food and beverages .....	138.2	138.7	139.9	147.6	148.3	150.0	148.8	149.7	151.4	145.0	147.1	149.3
Services .....	134.0	136.4	139.4	141.5	143.4	147.2	148.8	154.1	159.7	141.4	143.6	148.3
<b>North Central</b>												
<b>EXPENDITURE CATEGORY</b>												
All items .....	144.0	145.9	150.0	142.8	143.5	146.6	139.7	140.2	142.3	139.6	141.1	143.1
Food and beverages .....	137.1	137.5	138.1	136.4	136.6	137.5	137.0	137.8	139.6	139.6	140.5	140.7
Housing .....	152.7	155.0	162.9	147.7	147.4	152.6	141.5	140.5	143.5	140.5	142.1	144.0
Apparel and upkeep .....	109.4	112.3	110.8	116.9	119.8	118.9	114.5	116.4	115.3	114.1	115.6	118.6
Transportation .....	151.8	153.9	156.4	152.3	154.3	157.3	153.1	155.1	157.0	150.3	152.6	155.9
Medical care .....	134.6	137.1	139.1	136.2	138.1	139.9	136.7	138.6	140.4	140.1	142.1	144.0
Entertainment .....	127.5	130.2	130.6	124.2	125.3	124.4	126.8	129.2	129.8	124.8	125.7	126.9
Other goods and services .....	126.3	127.9	130.1	132.7	134.0	136.0	126.4	127.9	129.3	131.1	131.7	134.3
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities .....	140.3	141.7	144.4	139.5	140.1	142.5	138.2	138.6	139.9	136.0	136.9	138.0
Commodities less food and beverages .....	141.8	143.7	147.4	140.9	141.5	144.6	138.7	139.0	140.0	134.5	135.4	136.8
Services .....	149.4	152.1	158.3	148.1	149.0	153.2	142.2	142.7	146.2	145.3	147.8	151.1
<b>South</b>												
<b>EXPENDITURE CATEGORY</b>												
All items .....	142.1	144.1	146.2	144.9	146.7	148.7	142.1	143.7	145.9	138.8	141.8	144.8
Food and beverages .....	138.8	139.0	138.2	138.6	139.8	139.4	138.4	139.0	138.7	140.2	142.3	141.9
Housing .....	146.1	148.7	152.3	151.5	153.0	156.4	146.6	148.3	151.9	138.4	142.4	147.5
Apparel and upkeep .....	119.3	121.1	121.1	117.1	121.3	119.9	113.0	115.5	115.3	105.6	109.4	109.5
Transportation .....	152.9	155.7	158.1	153.4	155.9	158.3	152.2	153.8	156.6	151.4	154.3	157.7
Medical care .....	130.4	132.5	135.0	135.1	136.5	138.8	136.8	140.0	142.1	144.0	146.4	148.1
Entertainment .....	123.5	123.2	124.9	129.0	130.0	130.7	129.0	130.5	132.1	131.0	131.2	133.5
Other goods and services .....	129.4	131.3	133.1	131.0	132.0	134.1	128.6	129.7	131.5	130.5	131.6	134.1
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities .....	140.1	141.5	142.1	140.8	142.3	143.2	139.1	140.1	141.3	138.4	140.7	142.1
Commodities less food and beverages .....	140.7	142.6	143.8	141.7	143.4	144.8	139.5	140.6	142.4	137.6	140.0	142.2
Services .....	144.8	147.6	152.1	151.2	153.3	157.0	146.6	149.2	153.1	139.3	143.6	149.0
<b>West</b>												
<b>EXPENDITURE CATEGORY</b>												
All items .....	142.6	145.7	147.5	144.0	146.7	149.1	141.2	142.1	143.9	141.0	143.6	146.9
Food and beverages .....	136.8	138.2	138.3	139.4	141.4	142.6	134.8	136.2	137.5	140.8	141.3	143.2
Housing .....	147.2	151.2	153.2	148.7	151.8	155.1	145.2	144.8	146.7	138.3	142.0	146.1
Apparel and upkeep .....	116.4	119.9	120.7	122.3	125.2	123.1	112.1	114.9	113.4	129.8	133.7	133.5
Transportation .....	150.8	154.2	157.4	151.9	154.9	157.5	152.6	155.6	158.7	154.1	156.0	159.3
Medical care .....	137.5	139.5	141.0	136.0	137.5	141.2	137.5	139.0	141.5	139.6	140.8	146.2
Entertainment .....	127.0	127.0	127.7	126.6	128.9	128.9	126.6	128.9	130.8	140.5	142.1	143.7
Other goods and services .....	129.1	131.8	134.8	131.4	133.3	134.7	126.8	128.6	130.2	131.5	133.0	137.8
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities .....	137.3	139.5	140.5	140.0	142.2	143.4	137.1	139.1	140.2	139.7	141.6	144.7
Commodities less food and beverages .....	137.6	140.1	141.4	140.3	142.6	143.8	138.0	140.2	141.3	139.3	141.6	145.3
Services .....	149.6	154.0	156.8	149.4	152.9	156.8	146.9	146.4	149.2	142.9	146.5	150.1

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

[1967 = 100 unless otherwise specified]

Area <sup>1</sup>	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981						1980	1981					
	June	Jan.	Feb.	Mar.	Apr.	May	June	June	Jan.	Feb.	Mar.	Apr.	May	June
U.S. city average <sup>2</sup>	247.6	260.5	263.2	265.1	266.8	269.0	271.3	247.8	260.7	263.5	265.2	266.8	269.1	271.4
Anchorage, Alaska (10/67=100)	...	240.1	...	241.1	...	244.6	...	...	235.0	...	236.2	...	240.1	...
Atlanta, Ga.	242.2	...	263.0	...	265.9	...	269.2	244.7	...	266.4	...	268.8	...	272.8
Baltimore, Md.	...	264.3	...	270.3	...	269.3	...	...	262.6	...	269.3	...	268.6	...
Boston, Mass.	...	256.4	...	262.3	...	263.6	...	...	255.7	...	261.8	...	263.6	...
Buffalo, N.Y.	235.4	...	251.4	...	254.6	...	257.2	234.6	...	249.7	...	252.7	...	256.1
Chicago, Ill.-Northwestern Ind.	248.2	258.9	259.6	259.7	263.7	264.5	269.1	248.0	258.1	258.8	258.9	263.0	263.9	267.9
Cincinnati, Ohio-Ky.-Ind.	...	264.5	...	266.1	...	271.7	...	...	266.3	...	267.7	...	273.3	...
Cleveland, Ohio	250.1	...	273.5	...	272.0	...	285.3	250.5	...	273.9	...	272.1	...	283.8
Dallas-Ft. Worth, Tex.	256.4	...	274.4	...	279.6	...	286.0	254.5	...	272.9	...	276.9	...	284.0
Denver-Boulder, Colo.	...	277.3	...	281.4	...	288.2	...	...	282.2	...	285.8	...	293.4	...
Detroit, Mich.	256.7	268.5	270.2	268.2	272.4	275.2	280.5	255.8	264.4	265.5	263.6	268.0	271.3	275.9
Honolulu, Hawaii	227.5	...	243.3	...	250.0	...	252.8	228.0	...	243.5	...	250.2	...	253.8
Houston, Tex.	266.5	...	281.5	...	286.4	...	292.9	262.8	...	277.7	...	283.1	...	289.4
Kansas City, Mo.-Kansas	247.8	...	261.9	...	265.4	...	270.5	246.3	...	260.1	...	264.3	...	269.1
Los Angeles-Long Beach, Anaheim, Calif.	250.1	259.4	261.6	263.3	265.5	267.3	267.9	253.4	262.7	265.0	266.5	269.1	270.7	271.7
Miami, Fla. (11/77=100)	...	137.3	...	140.0	...	143.2	...	...	138.8	...	141.7	...	144.8	...
Milwaukee, Wis.	...	266.2	...	269.9	...	278.5	...	...	271.9	...	274.6	...	283.5	...
Minneapolis-St. Paul, Minn.-Wis.	246.4	...	260.6	...	266.5	...	276.1	248.4	...	262.4	...	267.3	...	276.6
New York, N.Y.-Northeastern N.J.	237.2	249.4	252.7	253.9	255.4	256.7	258.6	236.7	249.1	252.7	253.7	254.8	255.9	257.9
Northeast, Pa. (Scranton)	...	252.4	...	257.6	...	259.9	...	...	255.1	...	260.6	...	263.3	...
Philadelphia, Pa.-N.J.	242.5	253.2	255.9	258.3	261.0	261.9	265.4	243.8	255.5	258.1	259.5	261.5	262.9	265.6
Pittsburgh, Pa.	246.1	...	265.5	...	265.7	...	271.3	246.8	...	266.4	...	267.3	...	273.0
Portland, Oreg.-Wash.	...	266.4	...	268.1	...	278.5	...	...	265.0	...	267.0	...	276.1	...
St. Louis, Mo.-Ill.	...	255.7	...	259.3	...	268.0	...	...	255.9	...	259.4	...	268.4	...
San Diego, Calif.	...	287.7	...	293.1	...	297.5	...	...	282.9	...	288.0	...	292.5	...
San Francisco-Oakland, Calif.	248.0	...	260.5	...	270.3	...	274.0	247.7	...	261.6	...	270.9	...	274.3
Seattle-Everett, Wash.	...	264.9	...	271.1	...	274.7	...	...	262.3	...	267.9	...	271.5	...
Washington, D.C.-Md.-Va.	...	257.2	...	262.3	...	264.7	...	...	259.4	...	264.2	...	267.7	...

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

Area is used for New York and Chicago.

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

## 26. Producer Price Indexes, by stage of processing

[1967 = 100]

Commodity grouping	Annual average 1980	1980						1981						
		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
<b>FINISHED GOODS</b>														
Finished goods .....	247.0	249.3	251.4	251.4	255.4	256.2	257.2	260.9	263.3	<sup>r</sup> 266.0	267.7	268.9	269.9	271.3
Finished consumer goods .....	248.9	251.7	254.1	254.1	257.0	257.9	258.9	262.5	265.0	<sup>r</sup> 268.2	269.6	270.6	271.5	272.8
Finished consumer foods .....	239.5	241.6	246.5	247.4	248.0	248.9	249.3	251.0	251.3	<sup>r</sup> 252.6	251.5	252.0	253.1	256.9
Crude .....	237.2	240.9	247.0	259.8	237.8	250.5	254.8	257.9	265.6	<sup>r</sup> 279.7	278.8	262.3	255.8	262.4
Processed .....	237.8	239.7	244.4	244.3	246.9	246.7	246.7	248.4	247.9	<sup>r</sup> 248.1	247.0	249.1	250.8	254.4
Nondurable goods less foods .....	283.9	288.4	290.0	290.9	291.7	293.9	296.2	302.7	308.4	<sup>r</sup> 316.0	318.8	319.6	321.0	321.2
Durable goods .....	206.2	207.5	208.1	206.2	214.0	213.1	213.5	214.9	215.1	<sup>r</sup> 214.0	216.2	217.7	217.9	217.9
Consumer nondurable goods less food and energy .....	191.2	192.8	193.9	194.6	195.6	196.9	197.6	201.9	203.5	<sup>r</sup> 204.8	206.5	207.1	208.0	208.9
Capital equipment .....	239.8	240.6	241.9	241.8	249.2	250.2	250.9	254.6	256.7	<sup>r</sup> 258.1	260.5	262.6	264.0	265.7
<b>INTERMEDIATE MATERIALS</b>														
Intermediate materials, supplies, and components .....	280.3	281.6	284.3	285.3	287.7	289.1	291.9	296.1	298.3	<sup>r</sup> 302.0	305.4	306.6	307.1	308.6
Materials and components for manufacturing .....	265.7	265.6	268.9	269.5	273.3	273.9	275.7	279.6	280.3	<sup>r</sup> 281.6	283.9	285.0	285.8	288.0
Materials for food manufacturing .....	264.4	264.4	277.9	275.8	295.1	299.0	279.6	280.7	273.2	<sup>r</sup> 267.5	264.0	260.3	263.9	262.6
Materials for nondurable manufacturing .....	259.5	261.7	263.4	263.2	265.0	266.7	268.5	274.0	276.5	<sup>r</sup> 279.4	283.8	286.6	287.5	288.8
Materials for durable manufacturing .....	301.0	297.3	299.2	300.5	304.7	303.8	304.3	306.9	305.4	<sup>r</sup> 306.9	310.2	311.1	310.5	314.4
Components for manufacturing .....	231.8	232.4	235.6	237.0	238.4	238.3	246.3	250.3	253.0	<sup>r</sup> 254.2	255.2	256.0	257.0	259.5
Materials and components for construction .....	268.3	269.6	271.4	271.7	272.4	274.0	276.6	279.2	280.3	<sup>r</sup> 282.7	287.7	288.3	289.3	290.2
Processed fuels and lubricants .....	503.0	514.2	517.4	519.5	516.2	521.3	539.4	551.9	569.8	<sup>r</sup> 598.3	607.0	608.7	605.7	604.3
Manufacturing industries .....	425.7	431.0	436.0	440.8	440.6	445.2	457.9	469.5	482.8	<sup>r</sup> 503.9	506.9	510.9	505.7	503.7
Nonmanufacturing industries .....	570.9	586.1	588.4	588.9	583.7	589.3	611.4	624.7	646.7	<sup>r</sup> 681.6	695.2	695.0	684.0	693.1
Containers .....	254.5	257.0	257.4	257.9	260.1	259.5	260.6	264.6	268.2	<sup>r</sup> 270.9	274.2	276.0	277.2	278.2
Supplies .....	244.5	245.3	247.7	250.3	252.3	255.2	255.0	257.8	257.8	<sup>r</sup> 258.9	262.1	263.8	264.6	266.2
Manufacturing industries .....	231.9	234.2	235.4	236.1	237.5	238.7	239.5	242.5	244.8	<sup>r</sup> 246.8	250.3	251.7	253.4	255.3
Nonmanufacturing industries .....	251.1	251.1	254.1	257.6	259.9	263.8	263.0	265.7	264.6	<sup>r</sup> 265.2	268.4	270.1	270.5	272.1
Feeds .....	229.0	225.2	234.7	246.8	250.3	259.2	251.5	252.0	237.5	<sup>r</sup> 231.7	239.5	243.2	235.7	232.8
Other supplies .....	253.6	254.7	255.8	256.9	258.8	261.3	262.4	265.6	268.3	<sup>r</sup> 270.6	272.4	273.6	276.1	278.9
<b>CRUDE MATERIALS</b>														
Crude materials for further processing .....	304.6	304.3	317.0	319.3	322.8	324.6	323.5	328.0	336.5	<sup>r</sup> 334.2	335.2	333.2	334.3	336.2
Foodstuffs and feedstuffs .....	259.2	263.4	276.8	276.6	279.1	277.3	271.6	270.7	267.1	<sup>r</sup> 262.1	263.4	260.6	264.2	267.0
Nonfood materials .....	401.0	390.8	401.9	409.8	415.4	424.9	433.8	450.1	484.9	<sup>r</sup> 488.4	488.8	488.6	484.2	484.2
Nonfood materials except fuel .....	346.1	333.9	344.8	351.4	355.6	363.9	373.3	391.0	427.9	<sup>r</sup> 430.9	432.7	428.6	418.3	413.5
Manufacturing industries .....	357.4	343.9	355.4	362.6	367.1	376.1	386.5	405.1	445.5	<sup>r</sup> 448.6	450.4	445.7	434.4	429.0
Construction .....	237.6	239.1	243.7	244.8	245.3	246.5	247.4	254.8	257.2	<sup>r</sup> 259.2	262.3	263.4	263.5	264.7
Crude fuel .....	615.0	615.1	626.3	639.1	650.9	664.9	670.2	677.4	697.7	<sup>r</sup> 703.6	697.2	715.3	739.9	762.2
Manufacturing industries .....	690.5	690.5	705.4	722.0	738.1	755.8	762.9	771.9	798.1	<sup>r</sup> 805.8	795.9	819.7	851.4	877.2
Nonmanufacturing industries .....	567.0	567.1	575.5	585.4	593.8	605.2	608.9	614.9	630.6	<sup>r</sup> 635.0	631.6	645.2	664.4	684.1
<b>SPECIAL GROUPINGS</b>														
Finished goods excluding foods .....	247.8	250.2	251.4	251.1	256.2	257.0	258.2	262.4	265.5	<sup>r</sup> 268.7	271.2	272.6	273.6	274.1
Finished consumer goods excluding foods .....	250.8	253.9	255.0	254.6	258.7	259.5	260.9	265.1	268.5	<sup>r</sup> 272.5	275.1	276.1	277.0	277.1
Finished consumer goods less energy .....	218.0	219.7	221.9	221.9	225.0	225.5	226.0	233.8	229.6	<sup>r</sup> 230.2	231.3	232.1	232.9	234.5
Intermediate materials less foods and feeds .....	282.3	283.8	285.8	286.6	288.2	289.3	293.5	298.0	301.0	<sup>r</sup> 305.4	309.0	310.5	311.0	312.8
Intermediate materials less energy .....	265.3	265.5	268.3	269.2	272.2	273.3	274.9	278.3	279.1	<sup>r</sup> 280.5	283.4	284.6	285.4	287.2
Intermediate foods and feeds .....	252.6	251.4	263.7	265.9	280.3	285.7	270.0	270.9	261.3	<sup>r</sup> 255.6	255.6	254.1	254.3	252.5
Crude materials less agricultural products .....	446.4	434.6	447.1	454.1	463.2	473.8	482.8	504.0	547.6	<sup>r</sup> 551.8	551.9	552.8	547.4	546.9
Crude materials less energy .....	256.1	256.1	268.5	269.9	272.4	271.7	267.5	266.0	262.6	<sup>r</sup> 259.6	261.1	257.9	259.6	261.8

<sup>1</sup> Data for March 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> 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						1981						
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
	<b>All commodities</b>	268.8	270.4	273.8	274.6	277.8	279.1	280.8	264.8	287.6	'290.3	292.8	293.7	294.5	296.0
	<b>All commodities (1957-59 = 100)</b>	285.2	286.9	290.5	291.4	294.7	296.1	297.9	302.2	305.1	'308.0	310.7	311.6	312.5	314.1
	<b>Farm products and processed foods and feeds</b>	244.7	246.6	255.1	256.5	259.4	260.5	257.0	257.9	255.1	'253.5	253.6	252.6	254.1	256.6
	<b>Industrial commodities</b>	274.8	276.2	278.2	278.8	282.0	283.4	286.6		295.7	'299.6	302.8	304.1	304.7	306.0
	<b>FARM PRODUCTS AND PROCESSED FOODS AND FEEDS</b>														
01	Farm products	249.4	254.3	263.8	267.0	263.6	264.9	265.3	264.5	262.4	'260.7	263.2	259.5	260.3	263.1
01-1	Fresh and dried fruits and vegetables	238.6	252.0	254.0	266.2	240.9	246.6	245.1	258.7	271.5	'292.8	285.2	273.9	258.6	265.0
01-2	Grains	239.0	244.8	256.5	260.6	269.2	270.9	265.2	277.7	267.5	261.8	264.7	257.7	257.1	257.4
01-3	Livestock	252.7	260.5	275.7	266.8	263.0	254.8	251.4	244.3	244.6	239.3	246.6	251.8	263.0	266.5
01-4	Live poultry	202.1	227.2	224.5	241.0	222.9	221.0	218.9	213.1	220.8	213.5	195.4	207.2	210.0	215.3
01-5	Plant and animal fibers	271.1	267.0	280.8	295.2	278.5	287.2	294.1	284.1	268.4	270.1	274.2	258.3	259.6	251.3
01-6	Fluid milk	271.2	265.8	271.6	275.5	280.9	284.7	290.5	288.4	289.5	289.5	287.2	283.6	285.0	284.3
01-7	Eggs	171.0	159.3	176.9	188.4	175.2	194.0	217.5	185.7	184.8	180.4	196.2	165.0	174.6	185.1
01-8	Hay, hayseds, and oilseeds	247.1	251.4	261.5	280.7	284.4	298.3	310.2	311.8	295.0	298.5	296.3	299.0	285.3	288.3
01-9	Other farm products	299.0	292.4	282.7	292.0	285.8	296.6	296.0	296.1	295.1	295.9	295.9	258.7	242.7	250.2
02	Processed foods and feeds	241.2	241.5	249.4	249.8	256.1	257.2	251.5	253.3	250.2	'248.5	247.4	248.0	249.7	252.1
02-1	Cereal and bakery products	236.0	234.7	235.8	238.3	241.5	245.3	248.7	251.5	252.1	'252.2	253.5	255.1	256.0	257.2
02-2	Meats, poultry, and fish	243.1	248.5	259.9	257.8	256.0	250.9	248.1	248.1	243.6	'242.0	239.2	244.8	248.3	257.1
02-3	Dairy products	230.6	230.1	232.6	233.7	238.0	240.2	242.3	244.7	245.0	'245.1	245.8	245.0	245.6	245.5
02-4	Processed fruits and vegetables	228.7	229.8	230.7	231.3	233.8	234.7	236.6	238.4	243.7	'255.2	258.7	260.1	263.3	266.5
02-5	Sugar and confectionery	322.5	313.5	347.1	341.4	404.7	406.0	339.8	344.6	323.7	'302.0	286.0	265.3	277.6	269.8
02-6	Beverages and beverage materials	233.0	234.6	237.1	236.1	239.5	240.6	240.5	243.0	244.8	'245.4	243.4	245.0	245.5	246.3
02-7	Fats and oils	226.8	226.9	240.2	238.3	231.0	238.0	234.1	230.2	228.2	'229.8	232.6	228.6	227.5	235.1
02-8	Miscellaneous processed foods	227.2	223.5	224.0	226.8	230.6	235.0	240.5	244.2	248.0	'249.2	249.9	251.1	251.5	252.2
02-9	Manufactured animal feeds	226.8	223.9	232.4	243.4	246.9	254.5	247.1	248.9	235.9	'231.1	237.8	241.2	234.5	232.2
	<b>INDUSTRIAL COMMODITIES</b>														
03	Textile products and apparel	183.5	184.7	185.6	186.6	188.1	189.6	190.4	193.1	193.9	'195.2	196.5	198.0	199.5	200.5
03-1	Synthetic fibers (12/75 = 100)	134.7	136.0	137.5	139.5	140.2	140.7	140.8	146.5	147.1	'148.9	151.6	156.7	158.2	158.6
03-2	Processed yarns and threads (12/75 = 100)	122.5	122.4	123.2	124.3	125.1	125.8	128.2	129.8	130.3	'134.6	134.6	137.1	138.9	139.0
03-3	Gray fabrics (12/75 = 100)	138.1	135.7	137.5	141.0	143.5	145.0	144.0	143.6	144.0	'144.7	145.7	146.1	146.6	147.4
03-4	Finished fabrics (12/75 = 100)	115.7	116.6	116.8	117.0	118.3	119.1	120.1	122.2	122.9	'123.2	124.1	124.7	124.8	125.2
03-81	Apparel	172.4	174.4	175.1	175.0	176.2	176.8	177.5	179.9	180.7	'181.4	182.1	182.4	185.0	186.2
03-82	Textile housefurnishings	206.9	210.7	211.0	212.9	213.8	213.8	214.3	219.8	221.3	'221.3	226.3	231.1	228.1	231.6
04	Hides, skins, leather, and related products	248.9	245.1	251.3	247.8	251.2	255.4	256.9	258.2	257.7	'261.2	264.9	265.9	262.8	262.1
04-1	Hides and skins	370.9	356.6	398.4	356.1	381.5	409.1	392.8	377.5	367.4	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
04-2	Leather	310.6	292.2	314.2	298.1	301.9	317.3	332.4	332.6	310.0	322.5	337.8	337.0	321.0	317.4
04-3	Footwear	233.1	232.7	233.7	235.5	236.6	237.5	236.9	238.4	240.7	'240.4	241.1	241.1	241.0	241.9
04-4	Other leather and related products	218.3	217.5	218.7	218.8	221.8	222.6	225.3	230.1	236.9	'238.4	243.5	249.3	249.4	247.8
05	Fuels and related products and power	574.0	585.5	590.6	593.5	592.9	600.2	615.7	634.6	667.5	'696.5	703.8	706.0	704.9	703.4
05-1	Coal	467.3	467.5	468.7	471.3	470.7	475.4	475.3	477.8	480.8	'481.1	486.4	487.7	491.8	505.7
05-2	Coke	430.6	430.6	430.6	430.6	430.6	430.6	430.1	430.1	430.1	'430.1	430.6	468.5	470.3	470.3
05-3	Gas fuels <sup>3</sup>	760.7	762.1	772.6	786.2	802.2	825.5	844.3	857.1	881.6	'889.9	884.5	906.0	931.6	946.6
05-4	Electric power	321.6	331.1	333.6	338.3	337.4	333.8	337.6	341.4	346.2	'351.2	355.8	360.7	366.9	374.9
05-61	Crude petroleum <sup>4</sup>	556.4	551.4	566.8	571.3	579.6	600.6	632.8	704.4	842.7	'842.8	842.6	840.0	816.0	799.0
05-7	Petroleum products, refined <sup>5</sup>	674.7	693.9	697.6	696.4	690.4	697.6	717.0	736.9	769.6	'825.5	839.1	835.4	827.7	818.4
06	Chemicals and allied products	260.3	263.3	264.4	263.4	264.8	266.7	268.1	274.3	277.6	'280.4	285.8	288.2	290.3	291.4
06-1	Industrial chemicals <sup>6</sup>	324.0	328.7	330.0	327.5	330.0	332.7	334.6	344.5	352.1	'354.5	360.8	366.6	369.4	370.4
06-21	Prepared paint	235.3	238.8	238.8	239.3	239.3	241.4	241.4	242.9	246.6	'246.6	248.5	250.4	250.4	251.0
06-22	Paint materials	273.9	277.2	278.4	278.9	279.6	279.8	281.0	284.0	287.0	'290.5	295.2	300.1	300.8	304.4
06-3	Drugs and pharmaceuticals	174.5	175.7	176.1	176.8	178.4	181.1	182.6	184.7	187.3	'189.3	190.9	192.3	193.2	195.4
06-4	Fats and oils, inedible	298.0	260.0	307.6	304.5	302.0	308.2	317.1	310.7	289.7	'295.7	312.7	312.1	303.1	290.9
06-5	Agricultural chemicals and chemical products	257.1	258.7	260.0	260.6	260.6	261.1	263.3	267.6	271.6	'275.8	277.3	278.6	288.9	288.9
06-6	Plastic resins and materials	279.2	285.7	281.5	276.5	276.1	276.2	274.1	214.7	276.1	'279.4	285.4	287.9	288.7	295.9
06-7	Other chemicals and allied products	224.5	228.5	229.0	229.1	230.9	232.4	234.1	244.4	245.1	'248.3	256.4	255.8	256.0	254.8
07	Rubber and plastic products	217.4	218.8	220.5	222.0	222.8	223.4	223.3	224.8	226.4	'228.4	230.9	232.0	233.7	233.5
07-1	Rubber and rubber products	237.5	239.0	240.2	242.6	244.6	245.0	244.9	246.2	248.5	'252.1	253.9	255.3	257.8	258.0
07-11	Crude rubber	264.3	263.4	264.3	267.3	271.7	271.0	268.5	279.1	281.9	'281.2	279.1	282.9	284.6	283.8
07-12	Tires and tubes	236.9	238.0	238.0	242.1	245.2	245.2	245.2	240.9	243.5	'248.6	250.3	250.8	250.8	251.0
07-13	Miscellaneous rubber products	226.6	229.3	232.0	232.1	232.0	233.3	234.0	238.6	240.4	'243.5	246.8	248.6	254.2	254.7
07-2	Plastic products (6/78 = 100)	121.1	122.0	123.2	123.7	123.6	124.0	123.9	125.0	125.5	'126.0	127.8	128.3	128.8	128.5
08	Lumber and wood products	288.9	289.2	296.1	292.2	289.0	293.4	299.4	296.5	294.7	'294.4	298.1	297.8	297.9	295.5
08-1	Lumber	325.8	327.2	333.7	328.0	320.6	324.9	333.0	331.3	326.9	'326.2	331.3	334.9	335.0	330.1
08-2	Millwork	260.4	255.9	260.3	264.5	264.5	270.0	273.3	273.6	273.8	'275.7	276.5	274.8	272.9	273.6
08-3	Plywood	246.5	252.8	266.0	252.6	252.9	256.6	263.5	251.1	251.2	'248.8	254.4	248.4	250.9	248.1
08-4	Other wood products	239.1	236.9	236.2	236.8	236.7	236.6	236.2	238.5	238.1	'236.9	238.2	238.1	239.7	240.5

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						
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
<b>INDUSTRIAL COMMODITIES— Continued</b>															
09	Pulp, paper, and allied products	249.2	251.7	252.4	252.8	254.3	255.0	256.7	264.4	267.2	<sup>2</sup> 269.0	270.6	271.6	272.7	273.8
09-1	Pulp, paper, and products, excluding building paper and board	250.6	252.9	253.8	254.1	255.6	256.2	257.9	260.9	264.5	<sup>2</sup> 266.8	269.1	270.4	271.9	272.5
09-11	Woodpulp	380.3	388.3	388.3	388.2	389.6	390.2	390.2	390.2	390.2	<sup>2</sup> 390.2	396.6	396.6	396.6	396.6
09-12	Wastepaper	208.7	194.0	193.8	192.5	193.5	192.3	191.5	191.5	186.1	185.1	184.2	182.7	182.9	182.1
09-13	Paper	256.8	258.2	258.6	258.7	262.1	264.1	269.4	271.7	272.9	<sup>2</sup> 273.8	275.5	276.1	278.8	280.0
09-14	Paperboard	234.6	237.1	238.4	239.5	239.9	241.7	239.6	250.2	252.8	<sup>2</sup> 255.1	257.8	262.3	262.7	261.4
09-15	Converted paper and paperboard products	238.5	241.2	242.3	242.7	243.7	243.5	244.7	246.9	252.1	<sup>2</sup> 255.3	257.4	258.6	260.1	260.8
09-2	Building paper and board	206.2	211.8	210.3	210.2	212.7	216.5	219.7	219.7	225.7	<sup>2</sup> 227.9	231.9	236.9	236.8	234.6
10	Metals and metal products	286.4	282.5	285.1	287.3	291.9	291.1	290.6	294.0	294.0	<sup>2</sup> 296.4	298.7	299.2	298.5	302.5
10-1	Iron and steel	305.2	300.6	302.6	304.5	310.5	312.7	316.4	323.0	323.2	<sup>2</sup> 328.2	330.9	330.6	329.9	338.7
10-13	Steel mill products	302.7	301.0	301.0	301.0	307.5	309.4	313.7	322.6	322.9	<sup>2</sup> 328.7	331.8	332.0	332.1	344.9
10-2	Nonferrous metals	305.0	292.6	298.4	302.2	309.4	302.1	293.4	292.1	287.4	<sup>2</sup> 286.5	288.0	287.8	284.9	283.3
10-3	Metal containers	298.6	303.0	303.2	303.2	304.4	303.3	303.3	311.4	313.8	314.1	314.1	314.1	314.1	315.7
10-4	Hardware	240.5	242.6	243.3	245.9	246.6	249.6	251.7	254.5	258.0	<sup>2</sup> 258.6	256.4	257.3	257.6	261.7
10-5	Plumbing fixtures and brass fittings	246.7	249.7	250.4	250.6	250.6	252.3	254.9	256.7	259.2	<sup>2</sup> 259.5	256.2	265.6	268.2	270.3
10-6	Heating equipment	206.5	206.2	208.0	208.8	210.6	212.0	214.0	216.6	217.6	<sup>2</sup> 219.5	218.8	221.7	222.9	225.7
10-7	Fabricated structural metal products	270.5	272.2	273.0	274.1	276.9	278.0	279.3	283.1	285.4	289.4	293.5	294.3	295.4	298.3
10-8	Miscellaneous metal products	250.0	251.1	253.2	255.0	256.3	256.9	257.6	260.5	263.1	<sup>2</sup> 264.7	268.1	270.6	270.4	275.0
11	Machinery and equipment	239.8	241.5	242.6	244.7	246.8	248.3	249.8	253.3	255.3	<sup>2</sup> 257.5	259.2	260.6	261.9	264.5
11-1	Agricultural machinery and equipment	259.2	258.6	259.9	263.9	265.4	271.6	272.9	276.4	278.4	<sup>2</sup> 279.8	281.2	284.4	285.9	287.3
11-2	Construction machinery and equipment	289.4	281.5	293.4	295.7	299.1	300.1	301.4	305.9	310.0	<sup>2</sup> 312.8	314.7	318.3	320.0	324.0
11-3	Metalworking machinery and equipment	274.4	278.0	278.8	280.2	282.5	283.9	285.7	289.7	291.6	<sup>2</sup> 294.9	298.1	299.5	300.9	303.0
11-4	General purpose machinery and equipment	264.6	266.1	267.0	270.0	272.5	274.3	275.6	278.6	280.2	<sup>2</sup> 282.3	283.1	285.3	286.6	290.0
11-6	Special industry machinery and equipment	275.8	276.7	277.1	283.0	286.0	287.7	290.9	295.6	299.2	<sup>2</sup> 301.0	303.8	307.4	309.1	311.0
11-7	Electrical machinery and equipment	201.7	203.7	205.0	206.0	207.0	207.5	208.9	211.9	213.7	<sup>2</sup> 216.0	217.8	218.0	219.0	221.0
11-9	Miscellaneous machinery	229.9	231.1	232.1	233.6	236.5	238.5	239.6	243.3	245.2	<sup>2</sup> 247.0	248.1	248.4	249.8	253.2
12	Furniture and household durables	187.7	188.0	188.9	189.5	190.9	191.5	193.1	194.0	195.2	<sup>2</sup> 195.8	196.4	197.5	197.1	198.9
12-1	Household furniture	204.8	206.5	208.0	208.5	209.8	210.9	212.1	212.9	213.8	<sup>2</sup> 214.5	216.9	217.6	218.9	220.4
12-2	Commercial furniture	236.0	237.2	237.3	237.8	241.4	242.2	242.4	246.7	251.6	<sup>2</sup> 253.4	254.3	256.9	258.1	259.1
12-3	Floor coverings	163.0	163.2	163.8	163.9	164.4	165.5	170.7	172.3	171.9	<sup>2</sup> 174.1	176.2	179.9	181.1	182.8
12-4	Household appliances	174.2	175.8	176.3	177.2	177.5	178.5	178.5	182.2	183.5	<sup>2</sup> 184.2	183.8	184.2	184.8	187.5
12-5	Home electronic equipment	91.4	91.7	91.3	91.6	91.5	91.2	91.0	91.0	91.3	<sup>2</sup> 91.4	91.3	91.0	86.9	87.1
12-6	Other household durable goods	278.6	271.5	275.9	276.2	281.8	281.2	285.7	278.9	280.8	<sup>2</sup> 278.1	276.2	277.6	275.8	279.1
13	Nonmetallic mineral products	283.0	284.8	286.0	286.8	288.6	288.7	291.2	296.6	297.9	<sup>2</sup> 300.9	310.2	311.7	312.8	313.9
13-11	Flat glass	196.5	194.3	199.5	199.7	200.7	203.1	203.0	203.9	204.3	204.8	208.1	208.1	208.1	216.2
13-2	Concrete ingredients	274.0	275.9	278.6	278.9	279.0	279.1	279.7	290.0	291.4	<sup>2</sup> 292.6	296.4	297.2	297.1	298.1
13-3	Concrete products	273.9	275.9	276.0	277.3	277.5	277.7	277.6	286.1	286.6	286.9	269.5	290.7	293.2	293.0
13-4	Structural clay products excluding refractories	231.5	230.1	229.7	230.1	233.3	233.5	233.6	239.5	239.8	<sup>2</sup> 244.6	245.6	249.6	249.5	250.3
13-5	Refractories	264.6	268.7	270.6	270.6	273.2	273.2	273.2	282.6	293.5	<sup>2</sup> 296.1	297.3	304.2	307.3	308.0
13-6	Asphalt roofing	396.8	413.8	411.2	407.9	408.5	397.1	394.6	394.8	389.5	<sup>2</sup> 390.5	416.3	412.4	422.5	420.3
13-7	Gypsum products	256.3	253.1	251.8	251.8	249.5	253.3	252.7	259.6	257.3	<sup>2</sup> 257.6	256.8	261.1	260.7	259.7
13-8	Glass containers	292.7	294.3	294.3	294.6	306.2	306.2	311.4	311.4	311.4	<sup>2</sup> 311.4	326.0	334.5	334.5	334.7
13-9	Other nonmetallic minerals	394.6	396.9	397.1	400.7	402.7	403.3	418.9	418.7	424.7	<sup>2</sup> 441.7	479.9	477.6	476.8	476.3
14	Transportation equipment (12/68 = 100)	207.0	206.2	208.8	204.4	217.4	217.8	224.3	227.4	229.1	<sup>2</sup> 228.1	231.5	233.2	234.1	235.3
14-1	Motor vehicles and equipment	208.8	208.6	211.7	205.6	218.2	218.6	226.2	228.9	230.9	<sup>2</sup> 229.5	233.2	235.3	236.4	237.5
14-4	Railroad equipment	313.1	316.4	318.0	320.0	323.3	323.6	323.9	332.5	332.5	<sup>2</sup> 333.9	341.8	337.1	337.4	344.3
15	Miscellaneous products	258.8	261.7	260.1	265.1	266.0	263.6	265.3	264.3	264.9	<sup>2</sup> 264.0	265.5	266.1	266.1	262.8
15-1	Toys, sporting goods, small arms, ammunition	198.6	200.2	201.3	202.3	202.7	202.8	205.7	208.4	210.5	<sup>2</sup> 211.1	211.7	212.3	212.1	213.8
15-2	Tobacco products	245.7	248.2	248.2	248.2	249.4	254.4	254.8	254.8	256.1	<sup>2</sup> 256.3	268.4	268.4	268.4	268.5
15-3	Notions	217.2	221.7	223.8	223.9	224.0	224.1	225.0	227.2	247.3	<sup>2</sup> 247.3	248.4	248.4	268.0	267.5
15-4	Photographic equipment and supplies	202.9	201.6	200.9	200.9	200.8	206.7	206.6	207.4	209.6	<sup>2</sup> 211.2	211.6	212.9	212.9	211.7
15-5	Mobile homes (12/74 = 100)	150.2	151.2	151.4	151.7	153.2	152.7	153.0	153.0	153.1	<sup>2</sup> 155.0	155.2	155.3	155.5	155.8
15-9	Other miscellaneous products	363.4	370.9	364.6	381.9	383.4	367.0	370.5	363.3	358.1	<sup>2</sup> 351.3	347.8	348.4	346.0	332.3

<sup>1</sup> Data for March 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> Not available.

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

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

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

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

r = revised.

**28. Producer Price Indexes, for special commodity groupings**

[1967=100 unless otherwise specified]

Commodity grouping	Annual average 1980	1980						1981						
		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
All commodities — less farm products	269.6	270.9	273.8	274.3	278.1	279.4	281.2	285.4	288.8	'291.9	294.3	295.6	296.4	297.7
All foods	244.7	245.9	254.1	254.3	258.8	259.7	254.3	255.8	253.7	'253.4	251.6	250.3	252.2	255.5
Processed foods	246.6	247.3	255.7	254.9	261.7	261.9	255.5	257.0	253.9	'252.3	250.5	250.6	253.4	256.3
Industrial commodities less fuels	243.5	243.9	245.6	246.0	249.6	250.3	252.3	255.4	257.2	'258.6	261.4	262.6	263.4	264.8
Selected textile mill products (Dec. 1975 = 100)	124.3	125.5	126.0	126.6	127.5	128.1	129.3	131.8	132.5	'132.2	134.6	136.3	136.0	136.9
Hosiery	123.2	123.5	125.9	126.4	126.2	126.7	126.4	129.5	130.3	'130.5	134.1	134.5	135.6	135.7
Underwear and nightwear	185.4	188.3	189.3	189.5	189.7	190.3	190.6	199.2	200.9	'202.0	202.1	202.3	203.5	205.0
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	250.7	254.2	254.7	254.0	255.4	257.0	258.2	264.8	268.3	'271.0	276.0	278.7	281.0	282.1
Pharmaceutical preparations	167.1	168.1	168.4	168.8	170.8	173.7	174.6	177.1	179.7	'182.1	184.0	185.7	186.5	188.7
Lumber and wood products, excluding millwork and other wood products	304.0	306.9	315.5	307.4	302.3	306.5	314.2	309.2	306.0	'304.8	310.1	310.6	311.5	307.2
Special metals and metal products	258.5	256.2	259.0	257.8	265.7	265.7	268.6	271.8	272.7	'273.5	276.4	277.7	277.7	280.5
Fabricated metal products	258.2	259.9	261.2	262.6	264.3	265.2	266.3	269.9	272.5	'274.7	277.3	278.7	279.2	282.7
Copper and copper products	222.0	214.5	220.4	214.1	216.5	215.7	210.8	207.4	205.0	'204.8	207.5	207.1	204.3	203.0
Machinery and motive products	230.4	231.0	232.9	232.1	239.2	240.2	244.1	247.4	249.4	'250.2	252.6	254.2	255.4	257.4
Machinery and equipment, except electrical	263.0	263.7	264.6	270.2	273.0	275.1	276.7	277.3	279.7	'281.9	283.5	285.5	287.0	289.9
Agricultural machinery, including tractors	267.3	266.3	268.1	272.9	274.8	280.9	281.4	285.0	287.3	'288.3	287.8	292.2	293.6	294.3
Metalworking machinery	299.4	303.3	304.5	306.5	309.6	311.2	314.1	318.9	320.5	'323.5	325.7	327.1	328.4	329.9
Numerically controlled machine tools (Dec. 1971 = 100)	225.6	228.7	229.3	230.0	231.7	232.1	230.6	234.6	235.0	'235.7	236.1	237.7	241.7	242.1
Total tractors	287.3	288.3	291.1	295.8	298.3	299.9	301.2	305.8	311.1	'311.8	315.6	321.5	322.0	325.4
Agricultural machinery and equipment less parts	261.2	260.8	262.2	266.5	268.3	273.7	274.3	278.0	280.2	'281.5	281.7	285.5	286.9	287.6
Farm and garden tractors less parts	268.8	267.2	270.3	277.3	278.0	282.4	282.4	284.4	287.2	'287.6	288.5	296.8	297.2	297.2
Agricultural machinery excluding tractors less parts	266.5	265.9	266.6	269.7	272.5	279.9	280.9	285.7	287.7	'288.7	288.5	288.8	290.9	292.3
Industrial valves	287.8	291.1	291.3	292.4	294.6	296.0	297.8	300.7	305.5	'310.1	310.4	311.0	312.0	314.1
Industrial fittings	291.8	296.1	296.1	296.1	298.6	298.6	298.6	298.6	296.0	'298.9	302.7	303.0	303.0	303.0
Abrasive grinding wheels	( <sup>2</sup> )	261.5	261.5	261.3	263.4	273.0	273.8	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Construction materials	266.4	267.0	269.6	269.3	269.9	271.9	274.1	276.7	277.2	279.0	283.4	284.1	284.8	285.4

<sup>1</sup> Data for March 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> Not available.

**29. Producer Price Indexes, by durability of product**

[1967=100]

Commodity grouping	Annual average 1980	1980						1981						
		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
Total durable goods	251.5	251.2	253.1	253.7	258.4	258.6	261.0	262.7	263.8	'264.9	267.4	268.4	268.9	270.7
Total nondurable goods	282.4	285.6	290.3	291.2	293.0	295.2	296.3	302.6	306.8	'310.9	313.3	314.1	315.1	316.3
Total manufactures	261.5	263.0	265.7	265.8	269.6	270.5	272.0	277.3	279.3	'282.3	284.8	286.0	286.7	288.0
Durable	250.8	251.0	252.7	253.1	257.8	257.9	260.4	262.3	263.4	'264.4	266.9	268.0	268.7	270.6
Nondurable	273.0	275.9	279.5	279.5	282.1	284.0	284.3	293.5	296.4	'300.7	304.3	305.4	306.2	306.8
Total raw or slightly processed goods	305.7	307.7	315.7	319.9	319.6	322.9	326.2	322.9	330.3	'331.2	333.3	332.7	333.9	336.6
Durable	278.2	255.2	265.8	274.9	282.7	285.6	284.0	275.9	275.5	'281.7	286.2	281.0	272.7	271.9
Nondurable	306.7	310.6	318.4	322.2	321.3	324.6	328.2	325.3	333.3	'333.8	335.6	335.4	337.3	340.3

<sup>1</sup> Data for March 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r = revised.

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980						1981					
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June
<b>MINING</b>														
1011	Iron ores (12/75 = 100)	152.9	155.8	155.8	155.8	155.8	155.8	155.8	155.8	168.1	168.1	168.1	168.1	168.1
1092	Mercury ores (12/75 = 100)	331.2	331.2	329.1	335.4	338.7	343.7	325.0	297.9	324.5	335.4	354.1	347.9	352.0
1211	Bituminous coal and lignite	466.7	466.9	467.9	470.3	469.7	474.2	473.9	476.1	478.1	'478.5	483.9	484.9	488.7
1311	Crude petroleum and natural gas	643.8	638.0	656.7	667.6	681.8	704.6	731.7	786.5	897.9	'901.7	895.9	904.6	898.9
1442	Construction sand and gravel	252.7	254.8	255.8	258.5	261.8	263.2	264.3	270.1	272.3	'275.2	277.3	277.7	278.5
1455	Kaolin and ball clay (6/76 = 100)	136.0	136.6	136.6	136.6	137.2	132.1	133.7	137.1	137.1	137.1	137.1	137.1	137.1
<b>MANUFACTURING</b>														
2011	Meatpacking plants	244.0	249.1	265.3	257.1	258.0	251.4	249.0	244.7	237.2	236.1	237.7	243.0	245.5
2013	Sausages and other prepared meats	220.1	213.7	233.0	240.0	247.0	249.5	247.4	235.3	232.9	'230.4	227.1	230.4	237.6
2016	Poultry dressing plants	191.9	214.2	212.1	226.0	211.3	205.9	201.8	201.9	208.3	203.9	186.7	196.2	198.3
2021	Creamery butter	258.5	256.3	268.5	265.8	273.2	273.3	274.8	273.6	273.5	273.6	273.4	273.4	273.8

See footnotes at end of table.

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

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980						1981						
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
<b>MANUFACTURING—Continued</b>															
2022	Cheese natural and processed (12/72 = 100)	204.4	203.4	206.8	208.0	213.7	214.9	216.1	215.9	215.6	215.7	218.1	218.0	218.0	217.1
2024	Ice cream and frozen desserts (12/72 = 100)	193.3	195.2	195.5	196.1	199.5	199.8	207.5	210.1	210.6	210.6	211.4	212.4	212.7	
2033	Canned fruits and vegetables	221.4	222.9	223.4	224.3	227.6	231.1	232.0	233.3	237.4	241.5	245.0	246.9	250.0	
2034	Dehydrated food products (12/73 = 100)	160.2	157.7	159.6	159.9	162.6	168.6	170.4	174.1	171.3	172.9	174.5	175.3	180.5	
2041	Flour mills (12/71 = 100)	189.1	188.6	193.1	196.1	201.5	205.1	199.5	203.8	198.4	195.1	201.5	199.4	199.3	
2044	Rice milling	243.4	225.3	219.9	225.9	237.2	265.8	287.2	289.6	289.6	298.0	300.9	300.3	297.4	
2048	Prepared foods, n.e.c. (12/75 = 100)	124.2	122.2	126.6	129.6	129.2	133.3	133.9	132.6	129.3	126.6	128.8	130.2	127.8	
2061	Raw cane sugar	414.1	381.8	484.0	458.9	588.2	563.8	402.9	418.0	367.1	318.8	275.7	224.8	263.3	
2063	Beet sugar	358.0	342.3	365.5	384.5	460.1	512.2	423.3	414.5	398.1	370.7	360.7	351.3	299.3	
2067	Chewing gum	290.7	282.4	282.4	302.4	322.4	322.9	322.9	323.0	323.0	323.1	323.1	303.1	303.2	
2074	Cottonseed oil mills	192.9	191.3	215.1	232.9	218.7	231.8	228.0	221.2	193.7	204.4	218.3	216.6	212.3	
2075	Soybean oil mills	244.3	37.4	256.9	275.2	279.2	290.5	270.5	272.0	252.5	253.2	257.7	258.1	248.2	
2077	Animal and marine fats and oils	290.2	274.5	297.4	307.0	311.0	317.2	311.8	310.8	287.2	284.2	301.7	304.3	291.3	
2083	Malt	249.9	244.1	244.1	244.1	267.4	267.4	267.4	286.1	286.1	286.1	286.1	286.1	286.1	
2085	Distilled liquor, except brandy (12/75 = 100)	123.0	121.0	127.7	127.7	127.9	128.5	129.2	129.2	133.9	133.9	133.9	134.3	134.6	
2091	Canned and cured seafoods (12/73 = 100)	174.0	175.9	177.5	178.6	180.0	183.1	183.4	187.3	187.1	187.6	187.8	187.4	187.5	
2092	Fresh or frozen packaged fish	366.9	363.7	365.2	355.0	353.8	353.3	353.9	374.9	366.7	385.2	394.9	379.7	377.0	
2095	Roasted coffee (12/72 = 100)	269.3	274.5	274.7	263.9	257.0	252.5	248.5	238.2	238.3	238.3	238.5	238.6	236.6	
2098	Macaroni and spaghetti	233.8	230.5	230.5	239.3	243.6	243.6	243.6	243.6	243.6	243.6	243.6	246.6	246.6	
2111	Cigarettes	254.6	257.4	257.4	257.4	257.8	263.5	263.6	263.6	264.1	264.2	278.3	278.3	278.3	
2121	Cigars	158.6	159.9	159.9	159.9	163.7	164.0	165.1	165.1	165.3	167.0	165.6	165.6	166.8	
2131	Chewing and smoking tobacco	279.7	279.7	279.7	279.7	295.0	298.8	298.7	320.7	320.7	320.7	320.7	320.7	320.8	
2211	Weaving mills, cotton (12/72 = 100)	215.8	217.7	219.0	221.9	223.4	224.2	225.0	227.9	230.9	232.3	235.2	236.3	234.6	
2221	Weaving mills, synthetic (12/77 = 100)	124.8	123.0	124.9	127.7	130.7	133.0	132.5	131.9	132.3	133.3	134.2	135.3	136.4	
2251	Women's hosiery, except socks (12/75 = 100)	106.3	105.4	108.8	108.8	108.7	109.0	108.6	109.1	109.2	109.8	114.2	114.3	115.6	
2254	Knit underwear mills	190.1	192.6	192.9	194.1	194.2	194.7	195.0	205.6	208.7	209.7	209.7	209.9	210.5	
2257	Circular knit fabric mills (6/76 = 100)	104.6	105.4	105.7	105.8	106.7	107.1	107.5	109.3	109.6	109.1	109.3	109.0	109.6	
2261	Finishing plants, cotton (6/76 = 100)	135.1	137.2	137.3	136.9	139.1	139.3	140.2	142.4	144.5	144.6	146.8	147.0	146.3	
2262	Finishing plants, synthetics, silk (6/76 = 100)	113.6	113.8	114.1	115.3	117.3	117.9	120.5	121.7	123.1	124.3	124.8	126.4	127.0	
2272	Tufted carpets and rugs	138.1	137.7	138.3	138.3	138.8	140.0	145.7	148.1	147.8	150.2	152.5	156.0	157.0	
2281	Yarn mills, except wool (12/71 = 100)	203.5	202.9	204.3	206.2	207.9	209.9	215.1	216.9	218.1	220.7	221.0	224.1	225.9	
2282	Throwing and winding mills (6/76 = 100)	115.5	115.0	115.8	117.2	118.2	118.4	120.1	123.2	123.2	131.3	130.6	134.9	138.1	
2284	Thread mills (6/76 = 100)	139.1	143.0	143.1	143.1	143.8	143.9	143.9	144.1	144.3	148.4	150.8	150.9	151.1	
2298	Cordage and twine (12/77 = 100)	123.6	125.0	125.0	125.0	127.1	129.2	129.3	129.3	129.3	130.9	132.7	134.3	134.3	
2311	Men's and boys' suits and coats	212.6	214.9	214.9	214.9	216.2	216.3	216.1	218.2	219.7	220.1	220.5	220.4	221.5	
2321	Men's and boys' shirts and nightwear	204.4	206.5	206.7	207.7	208.0	208.6	209.5	206.3	207.3	207.1	205.3	204.9	205.5	
2322	Men's and boys' underwear	208.0	211.1	211.2	212.8	212.8	212.8	212.9	224.9	229.1	231.0	230.9	230.9	230.7	
2323	Men's and boys' neckwear (12/75 = 100)	112.6	112.4	112.4	112.4	112.4	112.4	115.4	115.4	115.4	115.4	115.4	115.4	113.9	
2327	Men's and boys' separate trousers	175.3	175.3	175.3	175.3	180.2	180.2	180.3	185.3	185.3	185.3	185.7	185.8	186.3	
2328	Men's and boys' work clothing	240.5	244.8	244.1	243.9	244.3	244.3	244.4	242.2	242.2	242.3	246.2	247.4	248.2	
2331	Women's and misses' blouses and waists (6/78 = 100)	110.3	111.4	112.6	112.6	114.0	114.0	115.4	116.3	116.3	116.4	115.2	115.2	117.1	
2335	Women's and misses' dresses (12/77 = 100)	114.7	114.0	115.4	115.4	116.3	116.3	116.3	116.5	116.9	118.5	118.2	118.7	121.4	
2341	Women's and children's underwear (12/72 = 100)	154.4	155.4	156.9	155.4	156.0	157.1	158.1	165.5	167.5	168.8	169.5	169.8	171.1	
2342	Brassieres and allied garments (12/75 = 100)	126.5	127.8	129.0	129.0	129.0	129.1	129.1	131.7	132.8	134.9	134.5	134.5	136.6	
2361	Children's dresses and blouses (12/77 = 100)	109.9	112.7	112.7	112.2	112.7	115.1	117.4	118.1	118.9	119.2	119.2	119.4	120.5	
2381	Fabric dress and work gloves	268.6	271.1	271.1	271.1	271.1	272.1	272.1	284.9	289.1	289.1	289.1	292.1	289.2	
2394	Canvas and related products (12/77 = 100)	123.8	123.4	123.4	123.9	125.1	125.1	126.1	126.8	126.8	127.8	129.9	130.6	130.6	
2396	Automotive and apparel trimmings (12/77 = 100)	122.4	122.3	122.3	122.3	122.3	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	
2421	Sawmills and planing mills (12/71 = 100)	227.7	228.9	234.2	229.0	223.2	226.8	233.5	232.3	229.6	231.0	231.9	233.6	233.9	
2436	Softwood veneer and plywood (12/75 = 100)	144.6	150.4	160.7	149.6	149.1	152.3	158.2	149.8	149.3	147.2	151.2	145.8	147.5	
2439	Structural wood members, n.e.c. (12/75 = 100)	155.6	152.1	152.2	155.5	156.2	157.0	157.1	157.1	157.0	157.1	158.3	158.2	157.5	
2448	Wood pallets and skids (12/75 = 100)	160.1	157.1	156.0	154.9	154.6	154.7	154.1	153.8	152.8	152.7	153.0	153.1	153.0	
2451	Mobile homes (12/74 = 100)	150.3	151.3	151.4	151.8	153.2	152.7	153.1	153.1	153.2	155.0	155.3	155.4	155.9	
2492	Particleboard (12/75 = 100)	161.5	168.7	169.4	163.7	159.8	163.6	165.9	163.9	170.3	172.3	179.6	183.2	181.0	
2511	Wood household furniture (12/71 = 100)	183.8	185.1	186.4	187.7	188.1	189.1	190.0	210.1	192.1	193.3	195.3	196.2	197.1	
2512	Upholstered household furniture (12/71 = 100)	163.6	166.1	166.2	166.2	167.7	168.6	170.5	169.9	170.1	170.1	173.4	173.4	175.2	
2515	Mattresses and bedsprings	179.1	180.8	186.4	186.4	186.5	186.5	186.5	186.3	188.3	189.5	194.5	194.5	194.6	
2521	Wood office furniture	235.2	235.5	235.5	235.5	239.7	239.7	240.9	244.1	250.4	253.5	254.6	255.5	255.6	
2611	Pulp mills (12/73 = 100)	240.0	244.5	244.5	244.4	246.1	246.8	246.8	246.9	246.9	246.9	253.4	253.5	253.5	
2621	Paper mills, except building (12/74 = 100)	145.5	146.4	146.7	146.7	148.2	149.2	150.7	152.0	152.6	153.3	154.3	154.8	156.2	
2631	Paperboard mills (12/74 = 100)	139.0	140.3	141.1	141.1	142.3	143.2	142.4	148.2	149.2	150.8	152.0	154.1	154.3	
2647	Sanitary paper products	322.0	327.4	331.1	331.1	332.6	334.7	338.2	338.3	342.5	343.0	344.2	345.4	345.3	
2654	Sanitary food containers	216.0	218.2	220.3	222.3	222.3	222.3	225.3	232.0	235.2	237.0	240.4	240.4	243.5	
2655	Fiber cans, drums, and similar products (12/75 = 100)	150.6	155.2	155.2	155.2	155.5	155.5	155.0	157.7	160.6	160.7	159.9	160.9	163.2	
2812	Alkalies and chlorine (12/73 = 100)	247.5	251.9	257.3	257.2	257.9	265.1	262.3	277.9	299.2	295.6	293.6	300.7	309.6	
2821	Plastics materials and resins (6/76 = 100)	143.0	146.1	144.4	141.5	141.5	141.5	140.9	142.4	143.5	144.8	148.1	149.7	150.0	
2822	Synthetic rubber	255.8	259.8	260.5	260.1	260.9	260.4	262.5	275.9	280.7	283.9	286.9	291.9	295.1	
2824	Organic fiber, noncellulosic	132.5	133.4	134.9	137.1	138.0	138.7	138.9	144.0	144.7					

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						
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. <sup>1</sup>	Apr.	May	June	July
3021	Rubber and plastic footwear (12/71 = 100)	177.9	181.8	181.9	182.0	182.0	182.4	182.3	182.8	183.4	183.6	183.7	184.0	184.1	184.7
3031	Reclaimed rubber (12/73 = 100)	184.7	186.5	185.9	185.9	184.0	184.1	186.7	190.4	190.4	187.6	195.2	195.5	185.6	190.8
3079	Miscellaneous plastic products (6/78 = 100)	121.7	122.7	123.9	124.4	124.2	124.6	124.5	125.4	125.4	126.3	128.4	128.8	129.3	129.0
3111	Leather tanning and finishing (12/77 = 100)	146.6	137.7	147.9	140.0	( <sup>2</sup> )	149.3	156.6	157.0	145.5	151.4	158.6	158.3	150.7	150.6
3142	House slippers (12/75 = 100)	149.1	151.1	151.1	151.1	153.5	158.2	154.9	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
3143	Men's footwear, except athletic (12/75 = 100)	159.8	158.5	159.5	161.5	161.6	162.4	162.4	164.8	166.5	167.6	168.4	168.4	168.5	169.7
3144	Women's footwear, except athletic	213.5	214.2	214.3	215.2	217.1	217.1	217.1	217.8	220.2	218.7	218.7	219.3	219.0	218.9
3171	Women's handbags and purses (12/75 = 100)	137.9	140.9	140.0	140.9	140.9	140.9	140.9	149.5	149.5	149.7	149.7	158.4	158.4	158.4
3211	Flat glass (12/71 = 100)	161.3	159.5	162.6	162.8	163.8	166.4	166.3	167.1	167.5	168.1	171.7	171.7	171.8	177.1
3221	Glass containers	292.6	294.2	294.2	294.2	306.1	306.1	311.4	311.4	311.4	311.4	325.9	334.4	334.4	334.6
3241	Cement, hydraulic	310.8	313.3	313.1	312.3	311.8	310.5	310.5	324.3	324.3	324.4	329.0	329.2	329.0	329.5
3251	Brick and structural clay tile	277.3	278.5	277.6	278.5	282.6	282.9	282.9	286.6	286.1	295.3	297.0	298.3	298.3	299.8
3253	Ceramic wall and floor tile (12/75 = 100)	122.5	117.6	117.6	117.6	120.1	120.1	120.1	127.1	127.1	127.1	127.2	129.6	129.6	129.6
3255	Clay refractories	273.6	279.2	279.5	279.7	280.2	280.7	280.7	291.5	305.2	308.1	310.3	312.7	313.9	314.0
3259	Structural clay products, n.e.c.	202.7	204.7	205.0	204.8	204.9	205.0	205.1	209.5	212.8	213.0	213.1	224.3	224.3	224.3
3261	Vitreous plumbing fixtures	234.8	237.2	240.4	241.1	241.5	242.6	245.0	244.7	248.9	249.4	252.0	252.5	255.8	258.7
3262	Vitreous china food utensils	317.3	318.3	318.3	318.7	327.4	327.4	327.4	327.4	327.4	328.0	328.2	336.6	336.6	336.6
3263	Fine earthenware food utensils	295.5	294.6	294.6	296.4	297.9	297.9	297.9	298.6	298.6	307.9	307.6	309.1	309.1	309.1
3269	Pottery products, n.e.c. (12/75 = 100)	152.6	152.7	152.7	153.3	155.4	155.5	155.5	155.5	155.5	158.5	158.5	160.5	160.5	160.6
3271	Concrete block and brick	257.3	259.5	259.5	260.5	259.4	259.4	259.4	264.1	265.0	263.2	267.3	271.1	271.2	271.3
3273	Ready-mixed concrete	279.9	282.6	282.6	283.6	282.7	282.8	282.9	294.8	295.4	296.0	298.6	299.5	301.9	300.5
3274	Lime (12/75 = 100)	157.7	159.6	160.2	158.8	160.8	160.8	161.8	165.7	171.7	172.6	172.4	172.4	173.1	173.4
3275	Gypsum products	256.7	253.5	252.3	252.2	250.0	253.6	253.1	259.9	257.6	257.9	257.1	261.4	260.9	261.8
3291	Abrasive products (12/71 = 100)	212.6	215.2	215.7	217.1	218.8	220.2	220.6	222.8	221.7	223.1	232.0	233.0	233.8	234.9
3297	Nonclay refractories (12/74 = 100)	161.1	162.8	164.9	164.8	167.8	167.5	167.6	172.4	177.5	178.9	178.9	189.9	189.0	189.7
3312	Blast furnaces and steel mills	310.5	308.6	308.5	308.6	314.8	316.6	320.7	328.7	328.9	334.0	336.6	337.6	337.6	349.6
3313	Electrometallurgical products (12/75 = 100)	117.7	117.1	117.1	117.2	117.3	117.3	119.9	120.0	120.0	120.0	120.8	120.6	120.7	121.2
3316	Cold finishing of steel shapes	284.0	282.2	282.3	282.3	288.1	288.8	293.3	302.8	303.1	306.1	308.3	308.3	308.5	325.1
3317	Steel pipes and tubes	290.9	292.4	292.6	292.6	294.2	302.4	308.4	315.5	316.3	321.6	333.1	334.2	336.3	348.2
3321	Gray iron foundries (12/68 = 100)	282.5	283.0	283.2	283.3	289.7	290.1	290.7	295.2	296.1	295.6	296.9	298.3	298.6	299.4
3333	Primary zinc	270.5	255.9	255.9	264.0	269.9	282.0	288.7	300.3	300.0	299.7	308.0	321.6	331.0	331.3
3334	Primary aluminum	297.9	312.1	312.2	313.0	325.6	328.5	328.0	331.7	332.3	332.2	334.6	336.0	334.4	336.2
3351	Copper rolling and drawing	227.5	222.8	226.2	220.2	222.0	222.9	222.8	218.7	215.3	211.8	212.1	211.9	212.1	209.5
3353	Aluminum sheet plate and foil (12/75 = 100)	158.2	158.2	157.6	157.6	161.5	163.3	165.1	169.3	170.7	172.1	173.9	174.4	176.2	178.2
3354	Aluminum extruded products (12/75 = 100)	167.7	168.3	168.4	168.2	173.2	176.3	176.4	176.8	177.1	177.3	180.6	180.7	180.8	181.1
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	146.2	147.4	147.6	147.5	150.7	151.2	151.1	155.3	157.1	157.2	157.5	157.5	157.4	157.6
3411	Metal cans	291.6	295.6	295.9	296.1	297.9	297.2	297.3	302.1	303.0	304.7	304.7	304.7	304.7	305.6
3425	Hand saws and saw blades (12/72 = 100)	182.1	183.5	185.4	185.8	186.8	187.2	190.5	195.4	196.3	198.0	197.8	199.8	199.8	302.8
3431	Metal sanitary ware	248.3	250.9	251.4	251.4	251.5	252.2	253.8	256.0	256.4	258.5	262.9	263.7	263.9	266.9
3465	Automotive stampings (12/75 = 100)	136.9	137.8	139.8	140.1	140.2	140.9	141.2	143.0	143.9	144.2	146.2	145.3	145.6	146.6
3482	Small arms ammunition (12/75 = 100)	145.6	145.1	147.3	145.3	145.8	146.3	160.9	157.9	157.8	157.2	163.2	163.2	163.2	163.2
3493	Steel springs, except wire	230.3	230.3	230.8	231.9	233.0	233.3	234.3	238.4	239.2	239.5	240.6	241.6	241.8	244.2
3494	Valves and pipe fittings (12/71 = 100)	230.0	232.5	232.7	233.3	235.8	236.9	238.3	240.2	242.1	244.8	245.9	246.5	247.0	248.5
3498	Fabricated pipe and fittings	315.5	317.2	317.2	319.9	325.0	329.9	329.9	335.7	335.7	338.5	358.8	359.9	361.6	365.9
3519	Internal combustion engines, n.e.c.	275.4	276.8	278.6	283.2	285.2	289.1	289.9	298.2	299.4	302.6	304.2	304.2	305.7	311.5
3531	Construction machinery (12/76 = 100)	141.1	141.8	142.7	143.8	146.0	146.6	147.5	150.0	151.4	152.6	154.3	155.0	156.6	159.0
3532	Mining machinery (12/72 = 100)	258.5	259.4	262.0	264.1	266.0	268.0	270.0	272.5	273.5	276.2	279.1	279.6	280.5	282.3
3533	Oilfield machinery and equipment	338.1	342.6	345.7	347.3	352.9	358.4	360.9	367.0	374.2	378.2	380.7	382.8	398.4	393.3
3534	Elevators and moving stairways	239.3	244.2	243.8	246.4	248.3	248.8	249.5	250.3	250.3	250.3	251.1	251.2	251.2	251.3
3542	Machine tools, metal forming types (12/71 = 100)	279.5	284.3	285.3	285.6	286.8	287.4	292.0	297.5	298.0	301.9	302.9	304.4	305.6	307.3
3546	Power driven hand tools (12/76 = 100)	132.2	133.5	134.5	135.3	136.6	136.7	137.9	142.6	144.9	145.2	146.4	147.0	147.1	148.1
3552	Textile machinery (12/69 = 100)	216.6	221.7	222.1	223.3	223.8	224.5	226.0	235.7	235.0	240.0	241.0	241.1	242.4	245.0
3553	Woodworking machinery (12/72 = 100)	212.5	215.9	216.0	216.0	217.0	217.7	221.5	222.5	223.1	224.7	225.8	225.7	226.6	233.6
3576	Scales and balances, excluding laboratory	215.0	215.4	226.2	226.2	226.3	226.9	217.9	220.5	221.1	224.2	225.9	230.2	230.2	226.5
3592	Carburetors, pistons, rings, valves (6/76 = 100)	156.6	158.6	159.3	160.1	164.9	165.2	167.6	168.9	170.9	171.5	171.9	171.9	176.3	180.6
3612	Transformers	184.9	186.0	190.6	190.7	193.9	193.0	193.3	194.9	197.1	204.3	206.2	207.9	209.6	212.6
3623	Welding apparatus, electric (12/72 = 100)	209.9	212.1	212.1	211.7	214.4	214.9	215.8	218.9	220.9	222.1	223.8	225.4	226.8	227.4
3631	Household cooking equipment (12/75 = 100)	133.1	134.9	134.4	134.7	134.8	135.8	137.5	140.1	141.0	141.1	140.3	140.5	140.9	140.4
3632	Household refrigerators, freezers (6/76 = 100)	121.4	122.2	122.2	123.3	124.1	125.1	125.1	127.5	127.5	127.6	128.1	128.1	129.4	134.0
3633	Household laundry equipment (12/73 = 100)	162.0	161.2	163.6	165.5	166.1	166.6	167.4	169.8	170.2	170.9	171.1	173.8	173.8	174.1
3635	Household vacuum cleaners	154.4	158.4	158.5	158.6	158.8	158.8	159.1	159.1	156.3	158.5	151.8	151.9	152.0	152.0
3636	Sewing machines (12/75 = 100)	129.1	130.0	130.0	130.0	130.3	130.3	130.3	130.3	130.3	131.9	131.2	153.1	153.1	153.1
3641	Electric lamps	260.3	266.3	268.1	269.2	268.7	270.2	266.2	265.8	271.2	272.6	275.5	275.2	275.1	275.3
3644	Noncurrent-carrying wiring devices (12/72 = 100)	219.7	220.3	220.7	220.9	221.8	223.7	229.2	233.1	236.3	240.6	244.9	245.2	252.9	254.7
3646	Commercial lighting fixtures (12/75 = 100)	139.3	139.2	140.4	142.3	142.8	143.1	144.7	145.1	148.0	151.4	156.6	156.7	156.7	154.9
3648	Lighting equipment, n.e.c. (12/75 = 100)	139.9	140.7	140.9	143.2	143.3	144.7	145.0	146.3	146.8	152.7	153.2	153.3	153.7	153.8
3671	Electron tubes receiving type	251.8	255.5	255.6	255.7	264.6	264.8	272.7	284.3	284.4	285.0	285.1	285.2	299.2	327.3
3674	Semiconductors and related devices	90.7	92.1	91.8	92.0	91.8	91.2	91.6	91.1	90.8	91.3	91.7	91.2	90.1	90.0
3675	Electronic capacitors (12/75 = 100)	162.7	168.6	172.6	174.0	170.1	170.2	170.3	170.3	171.1	173.2	171.4	171.0	168.3	168.6
3676	Electronic resistors (12/75 = 100)	134.2	135.3	136.3	136.9	137.7	137.8	137.8	139.0	139.9	139.9	139.7	140.9	141.2	141.9
3678	Electronic connectors (12/75 = 100)	148.1	148.9	149.1	149.6	149.7	149.7	149.7	152.2	153.5</					

## PRODUCTIVITY DATA

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

### Definitions

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

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

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

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

### Notes on the data

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

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

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

**31. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years, 1950-80**

[1977=100]

Item	1950	1955	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980
<b>Private business sector:</b>													
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	<sup>r</sup> 99.5	<sup>r</sup> 99.3
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	<sup>r</sup> 119.3	<sup>r</sup> 131.4
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	<sup>r</sup> 99.6	<sup>r</sup> 96.6
Unit labor cost	39.8	45.2	52.1	53.3	67.6	75.2	84.2	90.2	94.8	100.0	106.6	<sup>r</sup> 119.9	<sup>r</sup> 132.3
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	<sup>r</sup> 110.9	<sup>r</sup> 118.4
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	<sup>r</sup> 116.9	<sup>r</sup> 127.6
<b>Nonfarm business sector:</b>													
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	<sup>r</sup> 99.1	<sup>r</sup> 98.8
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	<sup>r</sup> 119.0	<sup>r</sup> 130.8
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	<sup>r</sup> 99.3	<sup>r</sup> 96.2
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	<sup>r</sup> 120.0	<sup>r</sup> 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	<sup>r</sup> 108.5	<sup>r</sup> 117.5
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	<sup>r</sup> 116.2	<sup>r</sup> 127.4
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	( <sup>1</sup> )	( <sup>1</sup> )	66.3	79.9	85.4	94.5	91.3	94.4	97.4	100.0	100.4	<sup>r</sup> 100.4	<sup>r</sup> 101.0
Compensation per hour	( <sup>1</sup> )	( <sup>1</sup> )	36.3	43.0	58.3	70.8	77.6	85.5	92.5	100.0	108.2	<sup>r</sup> 118.7	<sup>r</sup> 130.7
Real compensation per hour	( <sup>1</sup> )	( <sup>1</sup> )	74.2	82.6	91.0	96.5	95.4	96.3	98.5	100.0	100.5	<sup>r</sup> 99.1	<sup>r</sup> 96.2
Unit labor cost	( <sup>1</sup> )	( <sup>1</sup> )	54.7	53.8	68.3	74.9	85.1	90.6	95.0	100.0	107.8	<sup>r</sup> 118.2	<sup>r</sup> 129.4
Unit nonlabor payments	( <sup>1</sup> )	( <sup>1</sup> )	54.6	60.8	63.1	70.7	75.7	90.9	95.0	100.0	103.8	<sup>r</sup> 108.3	<sup>r</sup> 117.3
Implicit price deflator	( <sup>1</sup> )	( <sup>1</sup> )	54.7	56.2	66.5	73.4	81.8	90.7	95.0	100.0	106.4	<sup>r</sup> 114.8	<sup>r</sup> 125.2
<b>Manufacturing:</b>													
Output per hour of all persons	49.5	56.5	60.1	74.6	79.2	93.1	90.9	93.5	97.7	100.0	100.9	<sup>r</sup> 102.0	<sup>r</sup> 101.7
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	<sup>r</sup> 118.8	<sup>r</sup> 131.6
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	<sup>r</sup> 99.2	<sup>r</sup> 96.8
Unit labor cost	43.4	51.0	61.1	57.4	72.7	74.2	84.1	91.4	94.6	100.0	107.3	<sup>r</sup> 116.5	<sup>r</sup> 129.4
Unit nonlabor payments	55.1	59.4	62.0	70.3	66.0	71.6	70.4	88.5	95.1	100.0	104.7	<sup>r</sup> 105.7	<sup>r</sup> 108.6
Implicit price deflator	46.8	53.4	61.3	61.2	70.7	73.4	80.1	90.6	94.7	100.0	106.5	<sup>r</sup> 113.4	<sup>r</sup> 123.4

<sup>1</sup> Not available.

<sup>r</sup> = revised.

**32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1970-80**

Item	Year											Annual rate of change	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1950-80	1960-80
<b>Private business sector:</b>													
Output per hour of all persons	0.9	3.6	3.5	2.7	-2.3	2.3	3.3	2.1	-0.2	r -0.3	r -0.2	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	r 10.1	r 10.1	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	r -1.1	r -3.0	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	r 10.4	r 10.3	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	r 5.5	r 6.7	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	r 8.8	r 9.2	3.4	4.7
<b>Nonfarm business sector:</b>													
Output per hour of all persons	0.3	3.3	3.7	2.5	-2.4	2.1	3.2	2.0	-0.2	r -0.7	r -0.3	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	r 9.7	r 9.9	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	r -1.4	r -3.2	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	r 10.4	r 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	r 4.8	r 8.3	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	r 8.6	r 9.7	3.4	4.6
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	0.4	4.8	3.0	2.6	-3.4	3.4	3.2	2.7	0.4	r -0.0	r 0.6	( <sup>1</sup> )	2.1
Compensation per hour	6.8	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	r 9.7	r 10.1	( <sup>1</sup> )	6.7
Real compensation per hour	0.8	2.1	2.5	1.4	-1.1	0.9	2.3	1.5	0.5	r -1.4	r -3.0	( <sup>1</sup> )	1.5
Unit labor cost	6.3	1.6	2.8	4.9	13.6	6.5	4.9	5.3	7.8	r 9.7	r 9.5	( <sup>1</sup> )	r 4.6
Unit nonlabor payments	0.5	7.4	2.7	1.5	7.1	20.1	4.6	5.2	3.8	r 4.4	r 8.3	( <sup>1</sup> )	3.8
Implicit price deflator	4.4	3.5	2.8	3.8	11.4	10.9	4.8	5.2	6.4	r 7.9	r 9.1	( <sup>1</sup> )	4.3
<b>Manufacturing:</b>													
Output per hour of all persons	-0.2	6.1	5.0	5.4	-2.4	2.9	4.4	2.4	0.9	r 1.1	r 0.3	2.6	2.7
Compensation per hour	6.8	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	r 9.8	r 10.7	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	r -1.3	r -2.5	2.0	1.5
Unit labor cost	7.0	0.0	0.3	1.7	13.3	8.8	3.4	5.7	7.3	r 8.6	r 11.1	2.9	r 3.8
Unit nonlabor payments	-2.5	11.2	0.8	-3.3	-1.8	25.9	7.4	5.2	4.7	r 0.9	r 2.8	r 2.9	r 4.5
Implicit price deflator	4.3	3.1	0.5	0.3	9.0	13.1	4.6	5.6	6.5	r 6.4	r 8.8	r 3.0	4.2

<sup>1</sup> Not available.

r = revised.

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

[1977=100]

Item	Annual average		Quarterly indexes											
			1978				1979				1980			
	1979	1980	IV	I	II	III	IV	I	II	III	IV	I	II	
<b>Private business sector:</b>														
Output per hour of all persons	r 99.5	r 99.3	99.9	99.7	r 99.7	r 99.4	r 99.1	r 99.5	r 99.1	r 99.4	r 98.1	r 100.3	P 100.5	
Compensation per hour	r 119.3	r 131.4	111.9	115.0	r 118.1	r 120.7	r 123.2	r 126.4	r 130.1	r 133.1	r 135.9	r 139.7	P 143.2	
Real compensation per hour	r 99.6	96.6	100.3	100.6	100.3	99.2	98.0	96.7	96.5	96.9	96.0	96.1	P 96.8	
Unit labor cost	119.9	132.3	112.1	115.4	118.5	121.4	r 124.3	127.0	131.3	133.9	137.0	139.4	P 142.4	
Unit nonlabor payments	110.9	118.4	109.1	109.6	110.4	111.5	r 112.2	r 115.2	r 116.0	r 119.7	r 122.7	r 127.6	P 127.3	
Implicit price deflator	116.9	127.6	111.1	113.4	115.8	118.1	120.2	123.0	126.1	129.1	132.2	r 135.4	P 137.3	
<b>Nonfarm business sector:</b>														
Output per hour of all persons	r 99.1	r 98.8	99.8	99.5	99.1	r 98.9	r 98.8	r 98.9	r 98.2	r 99.0	r 99.0	r 100.0	P 99.8	
Compensation per hour	r 119.0	r 130.8	111.9	114.9	117.7	r 120.2	r 123.0	r 126.0	r 129.4	r 132.3	r 135.4	r 139.1	P 142.4	
Real compensation per hour	r 99.3	96.2	100.3	100.4	r 100.0	r 98.8	97.8	96.4	96.0	96.3	95.6	95.7	P 96.3	
Unit labor cost	120.0	132.4	112.2	115.4	118.7	121.5	124.4	127.4	131.8	r 133.6	136.8	r 139.1	P 142.7	
Unit nonlabor payments	108.5	117.5	107.0	107.1	107.7	r 109.2	r 110.1	r 113.9	r 115.1	119.2	r 122.0	r 127.8	P 126.6	
Implicit price deflator	116.2	127.4	110.5	112.6	115.1	117.4	119.7	122.9	126.3	128.8	131.9	r 135.3	P 137.3	
<b>Nonfinancial corporations:</b>														
Output per hour of all employees	r 100.4	r 101.0	100.5	100.6	r 100.7	r 100.5	r 99.9	r 100.2	r 100.1	r 101.8	r 101.8	r 103.3	( <sup>1</sup> )	
Compensation per hour	r 118.7	r 130.7	111.5	114.5	r 117.6	r 120.1	r 122.7	125.7	r 129.3	r 132.5	r 135.5	r 139.2	( <sup>1</sup> )	
Real compensation per hour	r 99.1	96.2	99.9	100.1	r 99.9	r 98.7	97.5	96.2	95.9	96.5	95.7	95.7	( <sup>1</sup> )	
Total unit costs	116.8	129.7	109.6	112.2	115.3	118.2	121.3	124.2	129.2	131.1	134.1	r 136.0	( <sup>1</sup> )	
Unit labor cost	118.2	129.4	111.0	113.8	116.8	119.5	122.8	125.4	129.1	130.2	133.1	r 134.7	( <sup>1</sup> )	
Unit nonlabor costs	112.7	130.2	106.0	107.8	111.2	114.6	117.2	120.9	129.3	133.8	136.9	r 139.5	( <sup>1</sup> )	
Unit profits	99.0	90.2	108.9	105.6	100.7	97.5	92.2	95.5	83.4	89.1	92.4	r 106.8	( <sup>1</sup> )	
Implicit price deflator	114.8	125.2	109.6	111.5	113.7	115.9	118.1	121.0	124.1	126.4	129.5	r 132.7	( <sup>1</sup> )	
<b>Manufacturing:</b>														
Output per hour of all persons	r 102.0	r 101.7	102.0	r 101.5	102.3	r 102.0	102.1	r 102.0	r 100.8	r 100.5	r 103.4	r 104.2	P 105.3	
Compensation per hour	r 118.8	r 131.6	111.5	114.5	r 118.6	r 119.8	122.3	125.4	r 130.0	r 133.9	r 137.3	r 140.9	P 144.5	
Real compensation per hour	99.2	96.8	100.0	100.2	100.7	98.5	97.2	95.9	96.4	97.5	97.0	96.9	P 97.7	
Unit labor cost	116.5	129.4	109.3	112.9	115.9	117.5	119.8	122.9	r 129.0	r 133.3	132.8	r 135.3	P 137.2	

<sup>1</sup> Not available.

r = revised.

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

[1977 = 100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	IV 1979 to I 1980	I 1980 to II 1980	II 1980 to III 1980	III 1980 to IV 1980	IV 1980 to I 1981	I 1981 to II 1981	I 1979 to I 1980	II 1979 to II 1980	III 1979 to III 1980	IV 1979 to IV 1980	I 1980 to I 1981	II 1980 to II 1981
	Private business sector:											
Output per hour of all persons	'1.6	'-1.8	'1.3	'-1.1	'4.6	<sup>P</sup> 1.1	'-0.1	'-0.6	0.0	'-0.0	'0.7	<sup>P</sup> 1.5
Compensation per hour	'10.7	'12.3	'9.3	'8.6	'11.8	<sup>P</sup> 10.3	'9.9	'10.1	'10.3	'10.3	10.5	<sup>P</sup> 10.1
Real compensation per hour	'-5.0	'-0.7	'1.6	'-3.8	'0.4	<sup>P</sup> 3.1	'-3.8	'-3.8	-2.3	'-2.0	-0.3	<sup>P</sup> 0.3
Unit labor costs	'9.0	14.4	8.1	'9.8	'6.9	<sup>P</sup> 9.2	10.0	10.8	10.3	10.3	'9.7	<sup>P</sup> 8.5
Unit nonlabor payments	11.2	2.6	'13.7	'10.2	'17.2	<sup>P</sup> -0.9	'5.1	5.1	7.4	'9.3	'10.8	<sup>P</sup> 9.8
Implicit price deflator	9.7	10.5	9.8	9.9	'10.0	<sup>P</sup> 5.9	8.4	9.0	9.4	10.0	10.1	<sup>P</sup> 8.9
Nonfarm business sector:												
Output per hour of all persons	'0.3	'-2.9	'3.6	'-0.2	'4.3	<sup>P</sup> -0.9	'-0.7	'-1.0	0.1	-0.1	'1.1	<sup>P</sup> 1.6
Compensation per hour	'10.2	'11.3	'9.0	'9.8	'11.6	<sup>P</sup> 9.6	'9.7	'9.9	'10.1	'10.1	'10.4	<sup>P</sup> 10.0
Real compensation per hour	'-5.4	'-1.6	'1.2	'-2.7	'-0.2	<sup>P</sup> 2.4	'-4.0	'-4.0	-2.5	'-2.2	-0.8	<sup>P</sup> 0.2
Unit labor costs	9.9	14.6	5.3	10.1	'7.0	<sup>P</sup> 10.6	10.4	11.0	9.9	9.9	'9.2	<sup>P</sup> 8.2
Unit nonlabor payments	14.6	4.2	'15.0	'9.9	'20.3	<sup>P</sup> -3.6	6.4	6.9	9.1	10.8	'12.2	<sup>P</sup> 10.0
Implicit price deflator	11.3	11.3	8.2	10.0	'11.0	<sup>P</sup> 6.0	9.1	9.7	9.6	10.2	'10.1	<sup>P</sup> 8.8
Nonfinancial corporations:												
Output per hour of all employees	'1.5	-0.5	'6.7	'-0.0	'6.3	( <sup>1</sup> )	'-0.3	'-0.5	'1.3	'1.9	'3.1	( <sup>1</sup> )
Compensation per hour	'10.2	12.0	'10.2	'9.4	'11.4	( <sup>1</sup> )	'9.8	'9.9	10.3	'10.4	'10.8	( <sup>1</sup> )
Real compensation per hour	'-5.4	-1.0	'2.2	'-3.1	'-0.0	( <sup>1</sup> )	'-3.9	'-3.9	-2.2	'-1.9	-0.5	( <sup>1</sup> )
Total unit costs	9.8	17.0	6.2	9.4	'5.6	( <sup>1</sup> )	10.6	12.0	11.0	10.5	'9.5	( <sup>1</sup> )
Unit labor costs	8.6	12.6	3.2	9.4	'4.8	( <sup>1</sup> )	10.1	10.5	8.9	8.4	'7.4	( <sup>1</sup> )
Unit nonlabor costs	13.3	30.6	14.7	9.5	'7.9	( <sup>1</sup> )	12.2	16.3	16.8	16.8	'15.4	( <sup>1</sup> )
Unit profits	15.3	-41.9	30.3	15.7	'77.9	( <sup>1</sup> )	-9.5	-17.2	-8.6	0.3	'11.8	( <sup>1</sup> )
Implicit price deflator	10.3	10.5	7.9	9.9	'10.4	( <sup>1</sup> )	8.5	9.1	9.1	9.6	9.7	( <sup>1</sup> )
Manufacturing:												
Output per hour of all persons	'-0.5	'-4.7	'-1.2	'12.1	'3.2	<sup>P</sup> 4.2	'-0.5	'-1.5	'-1.5	'1.2	'2.2	<sup>P</sup> 4.5
Compensation per hour	'10.4	15.5	12.7	10.5	'11.1	<sup>P</sup> 10.4	'9.4	'9.6	'11.7	'12.2	'12.4	<sup>P</sup> 11.2
Real compensation per hour	'-5.3	2.1	'4.5	-2.2	'-0.3	<sup>P</sup> 3.2	'-4.2	'-4.3	'-1.0	'-0.3	'1.0	<sup>P</sup> 1.3
Unit labor costs	'10.9	'21.2	-14.0	'-1.5	'7.7	<sup>P</sup> 6.0	'8.9	'11.3	13.4	10.9	10.0	<sup>P</sup> 6.4

<sup>1</sup> Not available.

r = revised.

## LABOR-MANAGEMENT DATA

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

### Definitions

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

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

**Effective wage-rate adjustments** 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								
	1976	1977	1978	1979	1980	1979			1980				1981 <sup>P</sup>	
						II	III	IV	I	II	III	IV	I	II
Wage and benefit settlements, all industries:														
First-year settlements .....	8.5	9.6	8.3	9.0	10.4	10.5	9.0	8.5	8.8	10.2	11.4	8.5	10.4	11.4
Annual rate over life of contract .....	6.6	6.2	6.3	6.6	7.1	7.8	6.1	6.0	6.7	7.4	7.2	6.1	7.3	10.0
Wage rate settlements, all industries:														
First-year settlements .....	8.4	7.8	7.6	7.4	9.5	8.9	6.8	6.3	8.2	9.1	10.5	8.3	9.0	12.2
Annual rate over life of contract .....	6.4	5.8	6.4	6.0	7.1	7.2	5.1	5.3	6.5	7.3	7.4	6.5	7.7	9.8
Manufacturing:														
First-year settlements .....	8.9	8.4	8.3	6.9	7.4	9.7	6.3	5.6	7.2	6.7	8.4	7.8	9.0	7.4
Annual rate over life of contract .....	6.0	5.5	6.6	5.4	5.4	8.1	4.7	4.2	5.7	5.1	5.6	5.8	6.7	6.2
Nonmanufacturing (excluding construction):														
First-year settlements .....	8.6	8.0	8.0	7.6	9.5	8.5	9.4	7.8	9.4	10.3	9.5	8.2	8.3	12.3
Annual rate over life of contract .....	7.2	5.9	6.5	6.2	6.6	5.8	6.5	7.4	7.6	8.5	5.9	6.8	7.6	9.4
Construction:														
First-year settlements .....	6.1	6.3	6.5	8.8	13.6	8.7	9.7	7.5	10.8	12.2	15.4	14.3	13.4	13.1
Annual rate over life of contract .....	6.2	6.3	6.2	8.3	11.5	8.3	8.5	7.6	9.1	10.4	13.0	12.0	11.6	10.9



### 36. Effective wage adjustments going into effect in major collective bargaining units, 1976 to date

[In percent]

Sector and measure	Average annual changes					Average quarterly changes								
	1976	1977	1978	1979	1980	1979			1980				1981	
						II	III	IV	I	II	III	IV	I	II
Total effective wage rate adjustment, all industries .....	8.1	8.0	8.2	9.1	9.9	2.6	3.3	1.6	1.6	3.3	3.5	1.3	1.2	2.8
Change resulting from—														
Current settlement .....	3.2	3.0	2.0	3.0	3.6	1.1	1.0	5	4	1.0	1.7	5	.1	.9
Prior settlement .....	3.2	3.2	3.7	3.0	3.5	1.0	1.0	4	5	1.4	1.2	3	6	1.4
Escalator provision .....	1.6	1.7	2.4	3.1	2.8	5	1.2	7	7	8	7	6	6	5
Manufacturing .....	8.5	8.4	8.6	9.6	10.2	2.3	3.2	2.4	2.0	3.4	2.9	1.7	1.4	2.1
Nonmanufacturing .....	7.7	7.6	7.9	8.8	9.7	2.8	3.4	1.0	1.3	3.2	4.0	1.1	1.0	3.4

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
1980 P: June .....	385	699	173	224	2,441	.13
July .....	414	733	241	336	3,954	.21
August .....	374	704	80	211	3,079	.15
September .....	420	724	126	247	3,407	.20
October .....	347	630	90	200	2,195	.11
November .....	201	427	52	101	1,110	.06
December .....	66	247	18	48	617	.03
1981 P: January .....	253	297	50	68	614	.03
February .....	347	517	90	136	647	.04
March .....	314	545	271	336	1,419	.07
April .....	371	560	101	273	5,117	.25
May .....	473	688	152	383	5,857	.31
June .....	421	682	186	499	3,891	.19

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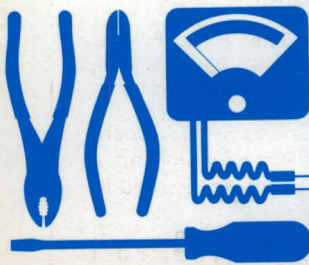
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