

Monthly Economic Indicators: A Closer Look at the Coincident Index

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DECISIONS relating to monetary policy are based on a considerable volume of economic information. One of these pieces of information is the current status of economic activity. Recent economic performance is a vital foundation required in the process of deciding what course monetary policy should take. There are many economic indicators released each month, and one problem for the monetary policymaker, as well as for businesses, consumers and governments, is to distill from this spate of information some assessment of just how well the economy is performing.

The U.S. Department of Commerce's *Business Conditions Digest* lists 84 different economic time series as monthly cyclical indicators. An analysis of all, or even a substantial subset, of these indicators could provide a confusing picture to even the most astute analyst. Fortunately, wading through such a morass is not necessary to determine how the economy is performing. The Commerce Department's Bureau of Economic Analysis (BEA) has simplified the process by publishing a "composite index of four roughly coincident indicators," which condenses the information from the most important monthly indicators into one summary index.

Because it is overshadowed by the simultaneous release of the more popular "index of twelve leading indicators," the coincident index does not receive extensive media coverage. Yet the coincident index provides valuable and reliable information. The purpose of this article is to describe the coincident index

and its components, and to summarize their usefulness and reliability according to well-known criteria. Particular attention will be focused on the cyclical performance of these indicators.

THE COINCIDENT INDEX AND ITS COMPONENTS: A BRIEF DESCRIPTION

The composite index of coincident indicators is published monthly and is constructed from four monthly indicators prepared and released by four different government agencies. A tabular summary of these indicators is given in table 1. A brief description of the component series and the coincident index follows. (A more detailed discussion of these series appears in the appendix.)

Employees on Nonagricultural Payrolls

This series commonly is called payroll employment; it is prepared by the Bureau of Labor Statistics of the Department of Labor. Usually released on the first Friday of the month, it generally covers the payroll period including the 12th of the preceding month. It is based on a survey of business establishments, in contrast to the estimate of total employment, which is based on a survey of households.

Personal Income Less Transfer Payments in Constant (1972) Dollars

This series is estimated by the BEA in the preparation of the national income accounts. The basic data on personal income and transfer payments for the

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Table 1
The BCD Composite Index of Coincident Indicators¹

Source agency for basic data	Employees on nonagricultural payrolls	Personal income less transfer payments in 1972 dollars	Industrial production	Manufacturing and trade sales in 1972 dollars	Composite index of coincident indicators
	U.S. Department of Labor, Bureau of Labor Statistics	U.S. Department of Commerce, Bureau of Economic Analysis	Federal Reserve Board of Governors	U.S. Department of Commerce, Bureau of the Census and U.S. Department of Labor, Bureau of Labor Statistics	U.S. Department of Commerce, Bureau of Economic Analysis
Units	Thousands of persons	Billions of 1972 dollars	Index, 1977 = 100	Millions of 1972 dollars	Index, 1967 = 100
Revisions	Two months back, and annually in June	Three months back, and annually in July	Two to three months back, and annually in September	Three months back, and twice annually, usually in March and May	Three months back and further as necessary
Name of release	The Employment Situation	Personal Income and Outlays	Industrial Production (G, 12.3)	Manufacturing and Trade Inventories and Sales	Composite Indexes of Leading, Coincident, and Lagging Indicators
Date of release	1st Friday of the month for the previous month	18th-20th of the month for the previous month	15th-17th of the month for the previous month	13th-15th of the month for two months earlier	30th-31st of the month for the previous month
Focus of release	Discussion equally divided between results from household survey data and establishment survey data	Personal income with discussion of wage vs. nonwage income. Also disposable income and saving	Total industrial production with some discussion of market and industry groupings	Brief discussion of sales, inventories and inventories-sales ratio	Highlights discussion of leading indicators with brief discussion of coincident and lagging indicators
Use in BCD	Used "as is" in coincident index	Transfer payments subtracted from personal income and deflated by personal consumption expenditures deflator	Used "as is" in coincident index	Sales deflated with BLS producer and consumer price indexes	Constructed from four series with unequal weights and detrending (see text)
BCD classification by economic process	Employment and unemployment	Production and income	Production and income	Consumption, trade, orders and deliveries	Composite indexes

¹Business Conditions Digest, a monthly publication prepared by the U.S. Department of Commerce, Bureau of Economic Analysis. All series are seasonally adjusted.

previous month are released after the middle of the current month. The constant dollar estimate, however, is not available until the end of the current month, when the composite indexes are released.

Industrial Production

This series is an index (1977 = 100) of the output of manufacturing and mining establishments and utilities; it is prepared by the Federal Reserve Board. The estimate for the previous month is available after the middle of the current month. Industries covered by the index generate about 30 percent of the gross national product (GNP).

Manufacturing and Trade Sales in Constant (1972) Dollars

This series is a measure of monthly business sales; it is prepared by the Bureau of the Census of the Department of Commerce. The current dollar estimates are released about the middle of the current month for two months earlier; for example, the estimate for October is released in mid-December. The constant dollar estimate, which is prepared by the BEA, is not available until the end of the month, when it is released as a part of the report on composite indexes.

Composite Index of Coincident Indicators

The composite index of coincident indicators is a summary measure designed to signal changes in the direction of economic activity. The index measures the behavior of the four economic time series described above, which show similar timing at business cycle turns but represent widely differing activities or sectors of the economy. These four components were selected with the help of a detailed scoring system that places particular emphasis on cyclical timing. The choice of coincident indicators was based upon a comparison of the timing characteristics of the particular series with reference dates (business cycle turning points) designated by the National Bureau of Economic Research (NBER).¹

Construction of the composite index of coincident indicators consists of several steps.² First, each of the component series is standardized by dividing the

month-to-month percent changes by the long-run average of those changes. This prevents the more volatile series from dominating the index. A weighted average of these standardized changes is then computed with the "better performing" series assigned more weight. These weighted averages are then cumulated into an index. The final step is to "trend-adjust" this index so that its long-term average growth rate (since 1948) equals the average of the trend in its four components. This trend, which is similar to real GNP, can be viewed as a linear approximation of the average growth rate in economic activity.

CRITERIA USED TO EVALUATE ECONOMIC INDICATORS

The BEA uses a scoring system to evaluate economic time series as cyclical indicators.³ This system provides information about which series are to be included in the composite index and the relative importance, or weight, attached to each series. Several criteria are used to evaluate time series; the numerical scores for these criteria are summarized in table 2. For the most part, these scores are derived qualitatively. Where possible, however, there is an attempt to evaluate quantitatively.

The scoring system, first developed and applied by Moore and Shiskin in 1966, was published in 1967. It was modified by Zarnowitz and Boschan in 1975, but continues to be similar in the most important detail. According to Zarnowitz and Boschan:

The system disciplines and systematizes the judgment of both reviewer and user of the indicators. It is an effort to insure that all the important aspects of the evaluation problem are considered in a consistent and, to a significant extent, replicable way.⁴

Economic Significance

How important is the economic process or variable for which the particular series stands, and what is the breadth of the series coverage in representing the activity concerned? Scoring for this criterion is subjective, depending primarily on a classification of indicators by "type of economic process." A broad hierarchy of three levels of economic variables was postulated:

- (1) Comprehensive output and input aggregates in real and nominal terms; for example, real GNP is

¹For a discussion of an example of how the NBER arrives at such a designation, see Zarnowitz and Moore (1983).

²For further detail, see the U.S. Department of Commerce (1984), pp. 65-70, and Ratti (1985).

³A complete discussion of this scoring system is found in Moore and Shiskin (1967).

⁴U.S. Department of Commerce (1977), p. 171.

Table 2
Series Scores

	Peaks	Troughs	All turns	Conformity	Smoothness	Timeliness	Statistical adequacy	Economic significance	Revisions	Total		
										Peaks	Troughs	All turns
Composite coincident index	96	97	100	86	100	80	77	90	20	82	82	83
Nonagricultural employment	79	97	96	82	100	80	84	90	60	82	87	87
Industrial production	17	100	95	87	100	80	77	90	40	64	85	84
Real personal income less transfer payments	98	81	100	83	100	80	72	90	20	81	77	82
Real manufacturing and trade sales	19	87	88	78	80	54	74	80	40	57	74	74

SOURCE: 1984 *Handbook of Cyclical Indicators*, p. 169

the only series that is scored 100.

- (2) The major components of the comprehensive aggregates and other variables to which causal roles in business cycles are attributed; for example, investment, profits.
- (3) Variables whose role is primarily symptomatic rather than causal; for example, marginal employment adjustments.

All of the components of the coincident index apparently are classified as being included in (1) or (2). With the exception of real manufacturing and trade sales, which is scored 80, all of the other components are scored at 90.

Statistical Adequacy

How well does the given series measure the economic variable or process in question? The BEA considers eight aspects of this criterion:

- (1) Quality of the reporting system — is it set up for statistical purposes or is it the by-product of an administrative program?
- (2) Coverage of economic process — full enumeration, probability sample, etc.
- (3) Coverage of time period — full month or quarter, one day per month, etc.

- (4) Availability of estimates of sampling and reporting errors.
- (5) Frequency of revisions.
- (6) Length of series.
- (7) Comparability over time — breaks in the series.
- (8) Other considerations.

This detailed evaluation is constructed to be primarily quantitative rather than qualitative.

Cyclical Timing

How consistently does the series coincide with successive business cycle turns? Because this criterion is crucial for timely recognition of business cycle turning points, it is assigned the greatest weight of all the criteria. According to the BEA, this criterion has four phases: (1) identification and dating of specific cycles for the component series; (2) deciding on reference dates (depending mainly on the reference chronology established by the NBER); (3) matching the specific cycle turning points with the reference dates; and (4) scoring the cyclical performance of the particular indicator.

Conformity

How regularly do movements in the specific indicator reflect the expansions and contractions of the

overall economy? For an indicator to be useful, its specific cycles must parallel business cycles. Conformity is defined positively if the indicator rises during economic expansions and declines during contractions, and negatively if it moves countercyclically. This evaluation considers the number of business cycle phases and how they are matched by the cycle movements of the particular indicator. Also examined are false signals associated with specific cycles; that is, movements in the indicators that do not match general expansions and contractions. In addition, there is a consideration of amplitude. For example, larger movements than the average will tend to be more identifiable, thus contributing to the usefulness of an indicator.

Smoothness

How promptly can a cyclical turn in a series be distinguished from a directional change associated with shorter movements? It is desirable that the cyclical movements of the indicator are not obscured by relatively large and frequent irregular variations. Although there are other ways of improving smoothness (for example, by calculating a moving average), generally such procedures imply a loss of timeliness.

Timeliness

How promptly available is the particular series and how often is it reported? Two aspects are considered: (1) how frequently the figures are compiled, and (2) how promptly the figures are available.

Revisions

How large are the revisions? This criteria was added separately to the list prepared by Zarnowitz and Boschan in 1975. Series that are subject to large revisions, especially if they involve directional change, can be troublesome, providing misleading signals about the pace of economic activity.

THE BEA SCORING SUMMARY FOR THE COINCIDENT INDEX

The scores shown in table 2 cover the period from 1948 to 1980. The BEA's objective was to develop a composite index that reduces the number of false signals that might arise if one were to rely on a single indicator. The advantage of a composite index is that it will smooth out the noise in the component series and also capture the different economic processes represented — production, employment, real income and real sales.

Depending on the total performance score, weights are assigned to each indicator in the construction of the composite index. For example, nonagricultural employment receives the greatest weight (1.064) because of its 87 score, followed by industrial production (1.028), personal income less transfer payments in constant (1972) dollars (1.003), and manufacturing and trade sales in constant (1972) dollars (.905). These weights do not differ markedly, although the difference between the largest and the smallest is substantial.

Nonagricultural employment scores high on all criteria, followed closely by industrial production. According to table 2, the weight on industrial production is reduced by its performance at cyclical peaks and by the extent to which it is revised. Personal income receives a relatively low score, mainly because of the revisions. Clearly, the worst of the components is manufacturing and trade sales, which generally scores lowest by each criterion.

The scores for the constructed composite index are somewhat surprising. In particular, the total score is lower than that of both nonagricultural employment and industrial production. Apparently, this reflects the fact that the composite index is subject to substantial revision, since it has to be revised every time any one of the component series is revised.

CYCLICAL PERFORMANCE

The most important criterion used in the evaluation of economic indicators is the cyclical performance of the indicator in question. Generally, to be classified as a coincident indicator, an indicator must turn on average between -3 (3-month lead) and $+1$ (1-month lag) at peaks and between -1 and $+3$ at troughs. The differences at peaks and troughs reflect the historical distribution of timing. Specific peak and trough dates for each of the coincident indicators are summarized in table 3.

Specific Cycles vs. Reference Dates

Business cycle turning points are designated by a special committee appointed by the NBER. This designation usually occurs several months after the fact and is based on all available information at that time. No automatic rule is used in the determination of these reference dates.⁵

⁵See Zarnowitz and Moore.

Table 3
Specific Peak and Trough Dates for Coincident Indicators

	Reference peak date						
	July 1981	Jan 1980	Nov 1973	Dec 1969	Apr 1960	Aug 1957	Jul 1953
Composite coincident index	7/81(0)	1/80(0)	11/73(0)	10/69(-2)	1/60(-3)	2/57(-6)	3/53(-2)
Employees on nonagricultural payrolls	7/81(0)	3/80(+2)	10/74(+11)	3/70(+3)	4/60(0)	3/57(-5)	6/53(-1)
Index of industrial production	7/81(0)	3/80(+2)	11/73(0)	10/69(-2)	1/60(-3)	2/57(-6)	7/53(0)
Manufacturing and trade sales in 1972 dollars	4/81(-3)	3/79(-10)	11/73(0)	10/69(-2)	1/60(-3)	2/57(-6)	3/53(-4)
Personal income less transfer payments in 1972 dollars	8/81(+1)	1/80(0)	11/73(0)	NSC ¹	5/60(+1)	8/57(0)	6/53(-1)
	Reference trough date						
	Nov 1982	Jul 1980	Mar 1975	Nov 1970	Feb 1961	Apr 1958	May 1954
Composite coincident index	12/82(+1)	7/80(0)	3/75(0)	11/70(0)	2/61(0)	4/58(0)	8/54(+3)
Employees on nonagricultural payrolls	12/82(+1)	7/80(0)	4/75(+1)	11/70(0)	2/61(0)	5/58(+1)	8/54(+3)
Index of industrial production	12/82(+1)	7/80(0)	3/75(0)	11/70(0)	2/61(0)	4/58(0)	4/54(-1)
Manufacturing and trade sales in 1972 dollars	10/82(-1)	6/80(-1)	3/75(0)	11/70(0)	1/61(-1)	4/58(0)	12/53(-5)
Personal income less transfer payments in 1972 dollars	10/82(-1)	7/80(0)	3/75(0)	NSC ¹	12/60(-2)	4/58(0)	4/54(-1)

SOURCE: U.S. Department of Commerce, *Business Conditions Digest* (August 1985), p. 104.

¹No specific cycle, that is, no specific turning point corresponding to the indicated reference is discernible.

There is considerable variation in the lead-lag time for the component indicators, although the range generally is smallest at cycle troughs. Personal income less transfer payments in 1972 dollars appears to coincide closest with the reference dates. Note, however, this series had neither a peak nor a trough associated with the 1969-70 recession.

Manufacturing and trade sales shows the greatest variation around reference dates. For only four of the 14 turning points did this series coincide. This is the only series that always leads or coincides with the reference dates, however.

Nonagricultural employment has an excellent record except for the 1973-75 recession. This recession was initiated by the OPEC oil shock and was thus unique among postwar recessions. The uncertain response of firms in deciding whether to retain or lay off employees in the face of this recession was no doubt

related to the difficulty of interpreting the shock. Other than that period, nonagricultural employment turns near reference dates, although it tends to lag rather than lead.

The index of industrial production has an excellent record around reference dates, especially the trough dates. It is not clear, therefore, why the BEA scores this indicator so low around cycle peaks, but it may be due to subsequent revisions around such dates. In recent years, the specific cycle turning point has been within \pm two months.

The coincident composite index should be expected to coincide almost identically with the reference dates, and in recent years it is very close. In earlier cycles, however, the difference was as much as six months. The explanation probably lies in the revision of data because reference dates are seldom changed and are based on data a few months after the

Table 4

One-Month Negative Changes during Expansions

Expansion period	No. of months	Composite coincident index	Nonagricultural employment	Industrial production	Real personal income less transfer payments	Real mfg. & trade sales
2/48-11/48	10	4	5	4	3	3
11/49-7/53	45	13	10	11	10	18
6/54-8/57	39	9	9	9	6	13
5/58-4/60	24	7	4	7	7	7
3/61-12/69	106	10	7	19	10	32
12/70-11/73	36	6	5	5	5	9
4/75-1/80	58	8	4	7	8	16
8/80-7/81	12	2	1	1	2	6
12/82-12/84	25	2	3	4	2	6
Total	355	61	48	67	53	110

Table 5

One-Month Positive Changes during Contractions

Contraction period	No. of months	Composite coincident index	Nonagricultural employment	Industrial production	Real personal income less transfer payments	Real mfg. & trade sales
12/48-10/49	11	2	2	2	4	4
8/53-5/54	10	0	0	2	3	3
9/57-4/58	8	0	0	0	1	0
5/60-2/61	10	0	0	1	5	3
1/70-11/70	11	1	4	1	6	3
12/73-3/75	16	2	11	4	4	4
2/80-7/80	6	0	2	1	1	1
8/81-11/82	16	2	1	2	4	6
Total	88	7	20	13	28	24

fact. The specific cycle turning points are derived from series as they are currently published.

False Signals

Another question of interest is the extent to which a particular series emits false signals. Does an indicator suggest a rise or fall in economic activity that is not confirmed by later information? To determine the extent of this problem, month-to-month changes in the component indicators and the composite were examined. A false signal is defined as a decline in the series during an expansion and an increase during a recession. Tables 4 and 5 summarize these results.

Table 4 indicates that one-month negative change are common during expansions, even for the composite index. The frequency of these perverse movement ranges from 48 (or 13.5 percent) for payroll employment to 110 (or 31 percent) for manufacturing and trade sales. The frequency of false signals also appear high in table 5, which shows positive movements of the indicators during recessions. The composite index performs better than the individual component during recessions.

Month-to-month variation is expected, necessitating that some longer-term perspective be maintained. As an example of what happens when data are ana-

Table 6

Three-Month Negative Changes during Expansions

Expansion period	No. of months	Composite coincident index	Nonagricultural employment	Industrial production	Real personal income less transfer payments	Real mfg. & trade sales
2/48-11/48	10	0	0	0	0	0
11/49-7/53	45	0	0	4	0	3
6/54-8/57	39	1	2	2	0	1
5/58-4/60	24	2	0	3	1	1
3/61-12/69	106	0	0	0	0	0
12/70-11/73	36	0	0	0	0	2
4/75-1/80	58	2	0	0	0	1
8/80-7/81	12	0	0	0	0	0
12/82-12/84	25	0	0	0	0	0
Total	355	5	2	9	1	8

Table 7

Three-Month Positive Changes during Contractions

Contraction period	No. of months	Composite coincident index	Nonagricultural employment	Industrial production	Real personal income less transfer payments	Real mfg. & trade sales
12/48-10/49	11	0	0	0	0	0
8/53-5/54	10	0	0	0	0	0
9/57-4/58	8	0	0	0	0	0
5/60-2/61	10	0	0	0	0	0
1/70-11/70	11	0	0	0	2	0
12/73-3/75	16	0	9	0	1	0
2/80-7/80	6	0	0	0	0	0
8/81-11/82	16	0	0	0	0	0
Total	88	0	9	0	3	0

lyzed with some perspective, consider tables 6 and 7. These tables are constructed like tables 4 and 5, except that a false signal is defined as three successive months of perverse movement.

As tables 6 and 7 show, the frequency of false signals drops dramatically. On a percentage basis, the frequency is minuscule. During expansions, real personal income less transfer payments emitted only one false signal in the postwar period, followed closely by payroll employment with only two. Because it is a weighted average of all four components, the composite index emitted more false signals than either payroll employment or real personal income less transfer payments.

During recessions, the record is even better. The coincident index has a perfect record, as do two of the components. Payroll employment is perfect except that it kept climbing during the early stages of the unusual 1973-75 recession.

Correlation Between Indicators

Further analysis of the composite index and its components is summarized in the correlation matrix in table 8.⁶ The highest component correlation is be-

⁶Shown is the Pearsonian coefficient of correlation, which is simply a measure of the closeness of association between two variables. If there is no association, the coefficient is zero; if the relationship is perfect, it equals 1. Also shown for comparison purposes is the correlation of the quarterly average with real GNP.

Table 8

Correlation Matrix: Coincident Indicators (monthly data, compounded annual rates of change)

Indicator	Employees on nonagricultural payrolls	Index of industrial production	Real personal income less transfer payments	Real manufacturing and trade sales	Composite index of coincident indicators
Employees on nonagricultural payrolls	1.00				
Index of industrial production	.71	1.00			
Real personal income less transfer payments	.58	.58	1.00		
Real manufacturing and trade sales	.38	.47	.35	1.00	
Composite index of coincident indicators	.84	.88	.77	.62	1.00
Real GNP (quarterly)	.70	.81	.83	.72	.84

tween nonagricultural employment and industrial production, and these two series also correlate most highly with the composite index. Clearly, the manufacturing and trade sales series performs least satisfactorily. When quarterly averages of the component indicators are compared with GNP, real personal income less transfer payments correlates most highly, followed closely by industrial production.

SUMMARY

Many economic indicators are potential candidates for inclusion in a list of sensitive measures of the economy's cyclical movements. To simplify the process of selection, the Bureau of Economic Analysis of the U.S. Department of Commerce has condensed the list to four key indicators and, in turn, has constructed a single composite index of coincident indicators. This article describes the composite index and its four component indicators, with special focus on their cyclical performance.

The four components of the coincident index are industrial production, nonagricultural employment, real personal income less transfer payments, and real manufacturing and trade sales. These four were rated highest by the BEA using a scoring system based on

seven criteria. On the basis of these criteria, no single indicator dominates the others as a monthly indicator of economic conditions.

For the casual economic analyst, the least satisfactory indicator would be real manufacturing and trade sales because, of the four series, it is the most volatile on a monthly basis. Also, it is slow to be released; the estimate for a particular month is not available until a month and a half later. The release lag for two of the other series is about one week for nonagricultural employment and about 15 days for industrial production. Although the basic data for real personal income less transfer payments are released in about 20 days, the inflation-adjusted series is not released until the end of the month for the preceding month. The composite index is released at the end of the month, but the first estimate for the preceding month is based on only three of the components; because of the reporting lag, real manufacturing and trade sales is excluded from this first estimate.

An examination of the cyclical performance of the coincident index and its components revealed that each series generally conformed well with the NBE business cycle reference dates. This result is not surprising, since turning points in economic activity are among the most important criteria used in the selection of coincident series.

One key question relating to the cyclical reliability of an indicator is the extent to which it emits false signals. An examination of monthly movements of the indicators shows that they do, in fact, give false signals, between 15 percent and 30 percent of the time. All of the indicators perform very well, however, when false signals are defined as three successive months of perverse movement.

Finally, some insights into the comparative performance of the coincident indicators were gleaned from simple correlation analysis. This analysis indicates that nonagricultural employment and industrial production are most closely related on a monthly basis with the composite index. These two component series also receive the greatest weight in the construction of the index. On a quarterly basis, however, real personal income less transfer payments correlates

most highly with real GNP. Real manufacturing and trade sales generally performs least satisfactorily.

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APPENDIX

Detailed Discussion of the Component Series of the Coincident Index

Employees on Nonagricultural Payrolls

This series measures the number of persons employed in nonagricultural establishments. Data are obtained from the establishment survey conducted each month by the Bureau of Labor Statistics. The data are primarily from payroll records voluntarily reported each month to state employment security agencies by employers in the 50 states and the District of Columbia. Most of these data relate to the payroll period that includes the 12th of the month; data for federal government employees represent positions occupied on the last day of the month. Included are full-time, part-time, temporary and permanent workers. Workers on paid leave and those who worked part of the pay period are included. Persons on the payroll of more than one establishment are counted each time they are reported. Excluded are persons on nonpay status for the entire period due to layoff, strike or leave without pay; the self-employed and unpaid volunteer and family workers; farm and domestic workers; and noncivilian government employees.

Personal Income Less Transfer Payments in Constant (1972) Dollars

This series measures personal income less transfer payments in constant (1972) dollars. Because transfer payments represent the largest part of personal income not accrued in production and some types of transfer payments tend to be counter-cyclical, their removal from personal income produces a series with greater cyclical amplitude. The current dollar series is deflated with the implicit price deflator for personal consumption expenditures.

Personal income is the income received by persons from all sources, that is, from participation in production, from transfer payments from government and business and from government interest, which is treated like a transfer payment. Persons consist of individuals, nonprofit institutions, private noninsured welfare funds and private trust funds.

Alternatively, personal income is defined as the sum of wage and salary disbursements, other labor

income, proprietors' income with inventory valuation and capital consumption adjustments, rental income, personal interest income and transfer payments less personal contributions to social insurance.

Transfer payments to persons are income payments, generally in monetary form, for which the recipients do not render current services. They consist of business and government transfer payments. Business transfer payments include liability payments for personal injury, corporate gifts to nonprofit institutions and bad debts incurred by consumers. Government transfer payments include payments under the following programs: federal old age, survivors, disability and hospital insurance; supplemental medical insurance; state unemployment insurance; railroad retirement and unemployment insurance; government retirement; workers' compensation; veterans benefits, including veterans life insurance; food stamps; black lung benefits; supplemental security income; and direct relief. Also included are government payments to nonprofit institutions other than those for work under research and development contracts.

The implicit price deflator for personal consumption expenditures (PCE) is a current weighted index (1972 = 100) derived by dividing current dollar PCE by constant dollar PCE for each period. It is a weighted average of the detailed price indexes used in the deflation of PCE with composition of the constant dollar PCE in each quarter as weights.

Index of Industrial Production

This series measures monthly changes in the physical output of the manufacturing, mining, and gas and electric utility industries. For manufacturing and mining, products at all stages of fabrication are included. The index does not cover production on farms or in the construction, transportation,

trade and service industries. It does, however, include production at plants and shipyards owned and operated by the government. The index is constructed using data supplied by government agencies and trade organizations, and uses 1977 as the base year. It is based on 252 series that are combined with value-added weights to create the total index of industrial production.

Manufacturing and Trade Sales in Constant (1972) Dollars

This series measures the monthly volume of sales of manufacturing, merchant wholesalers and retail establishments in constant 1972 dollars. The series is compiled from data collected each month by the Bureau of the Census in the shipments, inventories and orders survey and in the merchant wholesalers and retail trade surveys. They are adjusted to benchmarks from the five-year censuses of manufactures, wholesale trade, and retail trade and to interim annual surveys.

Basic data on manufacturers' sales are the value of their shipments for domestic use or export. Shipments are measured by receipts, billings or the value of products shipped (less discounts, returns and allowances) and generally exclude freight charges and excise taxes.

Deflated sales are computed as follows: manufacturers' sales are deflated by industry levels (standard industrial classification as defined by the Bureau of the Census) primarily using producer price indexes combined with 1977 product-class shipments weights; wholesale sales are deflated by kind of business using appropriate producer price indexes along with 1977 commodity-line sales weights; and retail sales are deflated by kind of business using components of the consumer price index with 1972 census commodity-line sales weights.