

## Statistical Indicators of Business-Cycle Changes

Among the primary leading indicators of business-cycle changes, new and revised data for the net change in inventories on hand and on order in constant dollars indicate that it decreased during October, November, and December. This series now has decreased for 5 consecutive months; however, a decreasing trend of this duration has been accompanied by a business-cycle contraction in only about 40 percent of such postwar instances. Therefore, we continue to appraise this series as probably expanding cyclically. Contracts and orders for plant and equipment in constant dollars and the index of net business formation increased during January. The moving averages of both of these series reached new cyclical highs, and both series apparently have continued to expand cyclically.

New orders for consumer goods and materials in constant dollars, the money supply ( $M_1$ ) in constant dollars, and the percent change in total liquid assets

decreased during January. Nevertheless, the 3-month moving average of the new orders series and the 2-month moving average of the liquid assets series increased to new cyclical highs, and both of these series are appraised as expanding cyclically. Revised data indicate that the real money balance decreased during November and increased during December. The December amount of the real money balance was a cyclical high, and the decrease during January was small. This series remains appraised as probably expanding cyclically. Although this series apparently is expanding cyclically, the January amount was less than 1 percent more than that at the cyclical trough of February 1976; therefore, a moderate decrease in this series would leave its cyclical status indeterminate.

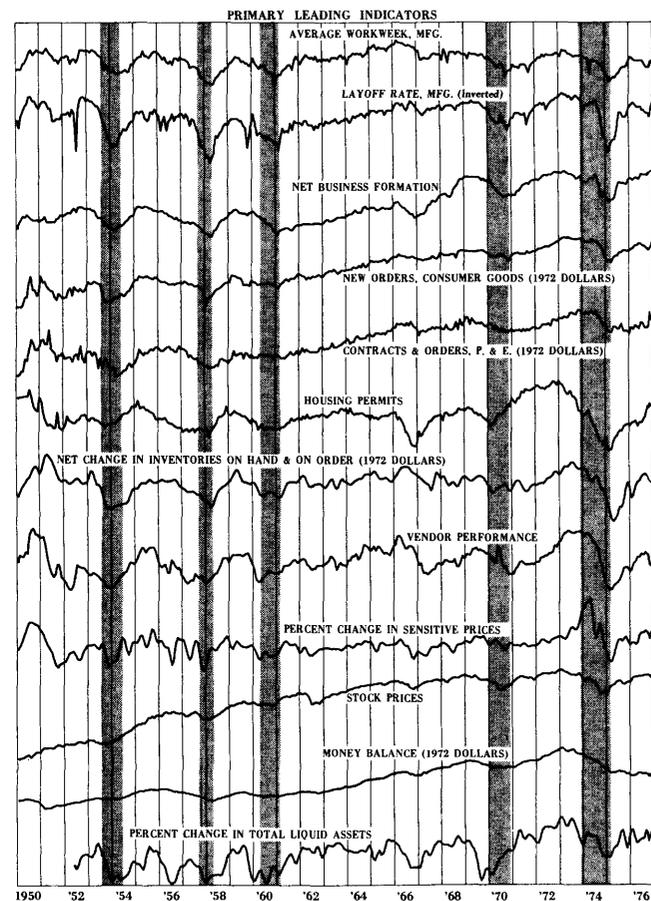
Both the inverted layoff rate in manufacturing and vendor performance decreased during January. The 3-month moving average of the layoff rate series has increased for 3 consecutive months, however, and the

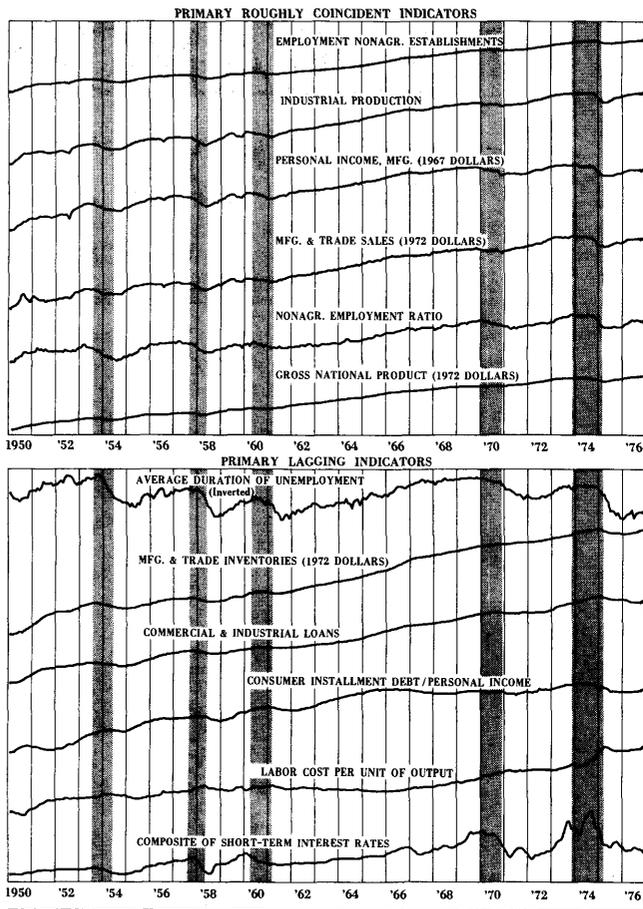
### THE STATISTICAL INDICATORS

Primary Leading	Direction of Change					Apparent Cyclical Status
	Oct.	Nov.	Dec.	Jan.	Feb.	
Average workweek, mfg.	+	+	-	-	+	?
Layoff rate, mfg.*	+	+	+	-	-	?
Net business formation	+	+	nc	+	+	+
New orders, con. gds.†	-r	+	+	-	-	+
Contracts & ords. p. & e.†	+	-	+	+	+	+
Housing permits	-	+	-	-	+	+?
Chg. invs., hnd. & ord.†	-r	-	-	-	-	+?
Vendor performance	-	-	-	-	-	-?
Chg. in sensitive prices	-	+	+	-	-	+?
Stock prices	-	-	+	-	-	?
Money balance ( $M_1$ )†	+	-r	+	-	-	+?
Chg. in liquid assets	+	+	+	-	-	+
Percent expanding cyclically						67
<i>Primary Roughly Coincident</i>						
Empl'm't. nonagr. establs.	-r	+	+	+	+	+
Industrial production	-	+	+	-	+	+
Personal income, mfg.†	-	+	+	+	+	+
Mfg. & trade sales†	-	+	+	+	+	+
Nonagr. employment ratio	-	+	+	+	+	+
Gross national product†q	+	+	+	+	+	+
Percent expanding cyclically						100
<i>Primary Lagging</i>						
Avg. duration of unempl.*	+	-	-	+	+	+
Mfg. & trade inventories†	+	-	+	-	-	+?
Com'l & industrial loans	+	+	+	-	-	+
Cons. instal. debt/per. inc.	nc	-	-	+	+	+?
Labor cost/unit of output	+	+	-	+	+	+
Short term int. rates	-	-	-	+	+	?
Percent expanding cyclically						83

nc No change. r Revised. \* Inverted. q Quarterly.  
 † In constant dollars.

Plus and minus signs indicate, respectively, increases or decreases in monthly or quarterly data and expansions or contractions of each series as currently appraised. Blank spaces indicate data not yet available; question marks indicate doubtful or indeterminate statuses of series.





cyclical status of this series, which had appeared to be contracting, has become indeterminate. The January decrease in vendor performance was the fifth consecutive decrease in this series, and it now is appraised as probably contracting cyclically. Until January's datum was received, its cyclical status was indeterminate.

The average workweek for a production worker in manufacturing and the index of new housing permits issued increased during February. The 3-month moving average of the workweek series has increased during 3 of the past 4 months. The cyclical status of this series, which had been contracting, now is indeterminate. The 2-month moving average of housing permits was unchanged during the most recent month at a level slightly less than its recent peak. We continue to appraise this series as probably expanding cyclically.

The percent change in sensitive prices and the index of 500 common stock prices decreased during February. The 4-month moving average of the sensitive prices series has decreased for 2 months. However, decreases in this series of this duration have not been cyclically significant historically. Therefore, a change in its cyclical status from probably expanding is not warranted. The 2-month moving average of the stock prices series has not exceeded a peak reached during August. Decreasing trends of 5 months' duration in this series have been accompanied by a contraction of general business activity in slightly more than half of such postwar occurrences. On this basis, we are unable to ascertain its cyclical status. Previously, this series was appraised as probably expanding. This change reduced the percentage of primary leaders appraised as expanding cyclically from 75 to 67.

Of the primary leading series, four clearly are expanding cyclically and four others probably are so

expanding. Only one series, vendor performance, is appraised as probably contracting. The cyclical statuses of the remaining three series are indeterminate. That eight of the 12 primary leaders apparently are expanding cyclically and only one series apparently is contracting cyclically suggests continuation of the general business expansion.

### Coincident and Lagging Series

All of the primary roughly coincident indicators increased during the most recent month or quarter for which data are available. These six series now are at new cyclical highs and clearly are expanding cyclically. Decreases in the index of industrial production, personal income in manufacturing in constant dollars, and the nonagricultural employment ratio during some months in the latter half of 1976 have proven to be only temporary interruptions in the cyclical expansions of these series. Those decreases reflected a temporary reduction in the rate of expansion of general business activity then, but not an outright contraction of such activity.

Among the primary lagging indicators, manufacturing and trade inventories in constant dollars increased slightly during December; however, this series did not exceed the recent peak reached during September. A 2-month decreasing trend in this series has been accompanied by a business-cycle contraction in about half of the postwar instances. Therefore, there is some doubt that such inventories are expanding cyclically. Nevertheless, because the series is only 0.1 percent below the peak, we appraise it as probably expanding.

The ratio of consumer installment debt to personal income and the index of labor cost per unit of output increased during January. Both of these series have continued cyclical expansions that began in February 1976. However, because the ratio of consumer installment debt to personal income has increased less than two percent since its trough and recently approached that trough, we continue to have doubt that it is expanding cyclically.

Commercial and industrial loans decreased during January for the first time since the apparent cyclical trough of last August. We continue to appraise this series as expanding cyclically.

Both the inverted average duration of unemployment and the composite of short-term interest rates increased during February. The 3-month moving average of the average duration of unemployment series increased to a new cyclical high, removing any doubt that the series was expanding cyclically. Clearly, the decreasing trend in this series during the latter part of 1976 was only a temporary interruption of this expansion. The composite of short-term interest rates has increased for 2 consecutive months. Until the current cycle, 2-month increasing trends in this series had a high probability of signaling a cyclical expansion. However, this series has given two false signals of cyclical expansion since general business activity began to expand in April 1975. Because of these two false signals and the small magnitudes of the recent increases, the cyclical status of this short-term interest-rate series is indeterminate. The percentage of primary lagging series appraised as expanding cyclically remains 83.

*That 67 percent of the primary leading indicators appear to be expanding cyclically and only one primary leader apparently is contracting cyclically warrants the conclusion that general business activity probably will continue to expand during the next few months.*

## SUPPLY INDUSTRIAL PRODUCTION

Production of steel, automobiles, and electric power (1) in the 1- and 4-week periods ended on the indicated dates in the current year and (2) in the corresponding periods of earlier years was as follows:

	1972	1973	1974	1975	1976	1977
<i>Steel</i>						
Ingot (million tons)						
1 week: March 19	2.56	2.98	2.84	2.67	2.51	2.49
4 weeks: March 19	10.04	11.73	11.52	10.89	9.98	9.53
<i>Automobiles</i>						
Vehicles (thousands)						
1 week: March 19	180	210	120	125	179	210p
4 weeks: March 19	719	850	577	454	709	822p
<i>Electric Power</i>						
Kilowatt-hours (billions)						
1 week: March 19	31.4	33.6	34.3	34.5	37.3	37.8
4 weeks: March 19	128.3	137.5	138.2	142.3	147.9	154.3

Percent change from 4 weeks a year earlier: +4.3

p Preliminary.

## DEMAND RETAIL SALES

Estimates of retail sales during the most recent week and 4 weeks compare with such sales during the corresponding periods a year earlier as follows:

Period	Percent change
Week ended March 19	+11
Four weeks ended March 19	+ 9

## BUSINESS MANUFACTURERS' ORDERS, SALES, AND INVENTORIES

Note: All data are seasonally adjusted.

New orders in current dollars received by manufacturers decreased more than 2 percent during January. However, the trend during the 3 months ended then was upward because of the large increases in such orders during November and December. New orders for both durable goods and nondurable goods increased during November and December, and such orders for nondurable goods increased during January. Therefore, the decrease in total new orders during January was attributable to the 4.3-percent decrease in new orders for durable goods then. Furthermore, most of the decrease in new orders for durable goods during January was attributable to a large decrease in such orders for transportation equipment then. New orders for durable goods excluding those for transportation equipment increased during January.

Shipments (sales) of manufacturers also trended upward during the 3 months ended in January. As was the case with new orders received by manufacturers, total shipments increased substantially during November and December but decreased during January. As was the situation with new orders, manufacturers' shipments of both durable goods

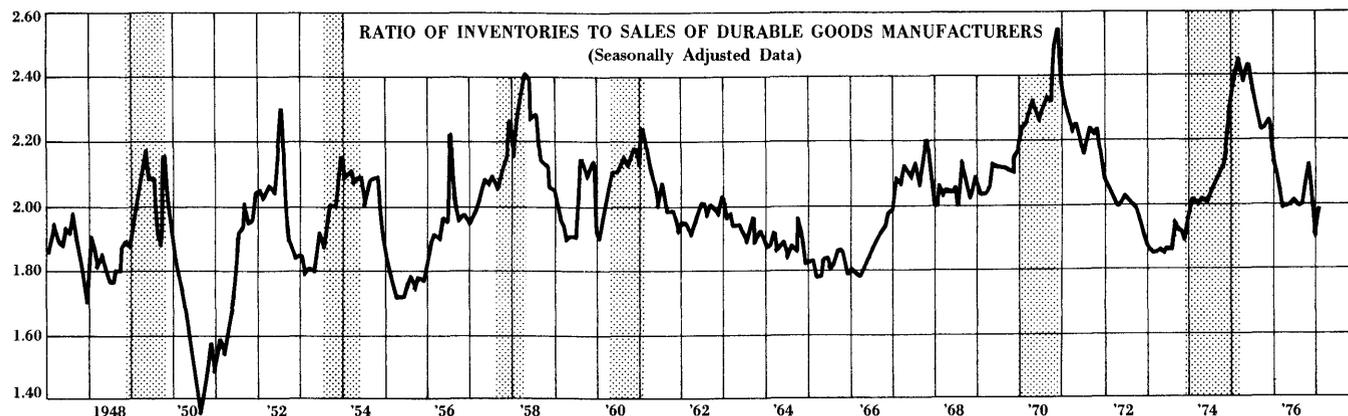
and nondurable goods increased during November and December, and shipments of nondurable goods increased during January. The decrease in manufacturers' shipments during January was attributable to a 3.5-percent decrease in shipments of durable goods then.

The large January decreases in new orders received by and shipments made by durable-goods manufacturers during January are not adequate evidence that these series have stopped expanding. Those decreases probably were primarily attributable to the severe weather and energy shortages then. Data for the next few months presumably will reveal if the January changes were only aberrations. In the meantime the upward trends in these series during the 3 months ended in January are more significant, and such trends suggest that the production of such goods during the next few months will continue to increase. The percent changes in the average amounts of manufacturers' new orders and shipments during the 3 months ended in January from those during the preceding and year-earlier 3-month periods were as follows:

	Percent change from	
	Preceding 3	Year-Earlier 3
	Month Period	Month Period
<i>New Orders</i>		
All manufacturers	+6.1	+14.2
Durable-goods mfrs.	+8.9	+21.1
Nondurable-goods mfrs.	+3.1	+ 7.5
<i>Shipments</i>		
All manufacturers	+4.7	+11.8
Durable-goods mfrs.	+6.1	+13.7
Nondurable-goods mfrs.	+3.0	+ 7.7

Manufacturers' unfilled orders at the end of January were 2.7 percent more than those at the end of October and 4.1 percent more than those a year earlier. It is now evident that decreases in this series during July and August were only temporary interruptions in the cyclical expansion of the series that had begun during March 1976. Unfilled orders of durable-goods manufacturers, which account for about 95 percent of all unfilled orders, were 4.2 percent more at the end of January than those a year earlier.

Current-dollar inventories of all manufacturers at the end of January were 0.6 percent more than those at the end of October and 7.4 percent more than those a year earlier. Such inventories of durable-goods manufacturers, which account for about two-thirds of total inventories, were 1.2 percent more at the end of January than those at the end of October and 6.8 percent more than those a year earlier. Current-dollar inventories of durable-goods manufacturers have trended upward since February 1976, but the constant-dollar amount (a better measure of real



volume) of such inventories has changed little since then. In constant dollars, inventories of durable-goods manufacturers increased less than 1 percent during those 11 months. For nondurable-goods manufacturers, current-dollar inventories decreased 0.3 percent during the 3 months ended in January, but they were 8.5 percent more than those a year earlier.

The recent trends of constant-dollar orders and sales of durable-goods manufacturers have been similar to those of the current-dollar series. That is, both constant-dollar new orders and constant-dollar sales have trended upward during recent months. Unfilled orders of durable goods in constant dollars also have trended upward during recent months after having trended downward from September 1974 through October 1976.

That constant-dollar inventories of durable-goods manufacturers have changed little recently might indicate that such manufacturers have adjusted production volume to changes in the volume of orders and sales. Because unfilled orders, new orders, and sales of durable-goods manufacturers in constant dollars have increased recently indicates that even if these manufacturers are cautious about their inventories they will have to increase production in order to meet increased demand.

Ratios of inventories to sales (shipments) for manufacturers of all goods, durable goods, and nondurable goods for January, for the 2 preceding months, and for January a year earlier were as follows:

	1976			1977
	Jan.	Nov.	Dec.	Jan.p
All goods	1.66	1.66	1.58	1.61
Durable goods	2.11	2.06	1.91	1.99
Nondurable goods	1.20	1.24	1.22	1.21

p Preliminary.

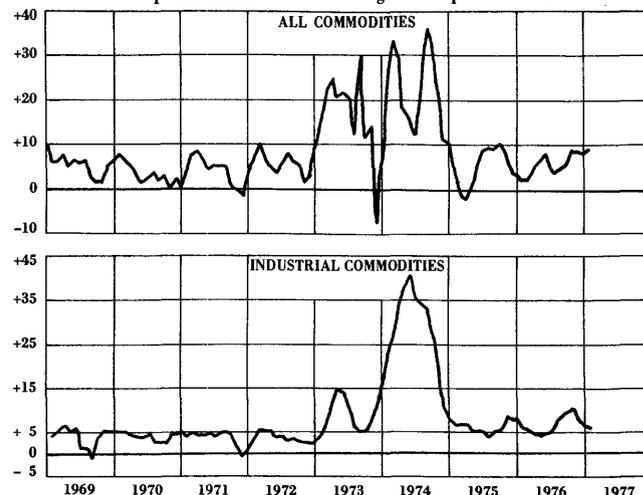
As the chart on the preceding page shows, the ratio of inventories to sales of durable-goods manufacturers decreased markedly during November and December but increased moderately during January. The large November and December decreases more than offset the increases during September and October. Those increases have adverse implications for future durable-goods production. However, that the most recent data indicate that an upward trend in this series has not yet begun has favorable implications for future durable-goods production. During the postwar period such production has not begun to contract cyclically until several months after the ratio of inventories to sales of durable-goods manufacturers has reached a cyclical trough. Therefore, we conclude that durable-goods production should continue to expand cyclically during the next few months.

New orders for consumer goods and materials in constant dollars, which is a primary leading indicator of business-cycle changes, increased substantially during November and December but decreased during January. This series had trended downward from March through October, and its cyclical status had become indeterminate. However, this series reached a new cyclical high during December and now is appraised as expanding cyclically.

Preliminary data reveal that new orders received by durable-goods manufacturers were unchanged during February. However, unfilled orders and sales of such manufacturers reportedly increased then. These preliminary estimates indicate that the favorable trends for such series during recent months have continued.

*Manufacturers' orders, sales, and inventories data through January suggest that industrial production probably will continue to expand cyclically during the next few months.*

CHANGES IN WHOLESALE PRICE INDEXES  
Compound Annual Rates of Change Over Span of 3 Months



## PRICES

### COMMODITIES AT WHOLESALE

Wholesale prices increased a seasonally adjusted 0.9 percent (an annual rate of 10.8 percent) during February. Among the major components of the WPI, industrial-commodities prices increased 0.6 percent, farm-product prices increased 2.2 percent, and prices of processed foods and feeds increased 1.8 percent on a seasonally adjusted basis then.

Although monthly changes in prices receive widespread attention, such changes have not been useful for ascertaining trends. Changes over 3-month spans have been more useful for that purpose, and such changes in the all-commodities and industrial-commodities indexes are shown in the accompanying charts. Note that the trend of changes in the rate for the all-commodities index recently has been upward, but that for the industrial-commodities index has been downward. Therefore, the more rapid rate of increase in the total WPI recently has been attributable to more rapid rates of increase in the prices of farm products and processed foods and feeds then. Such prices tend to fluctuate markedly while industrial-commodities prices do not. Underlying wholesale price conditions are reflected better by the less erratic industrial-commodities index.

### Latest Indexes

Index	1976		1977
	Mar. 15	Mar. 7	Mar. 14
Spot-market, 22 commodities*	509	562	567
Commodity-futures	632	894	884
Steel-scrap	\$87.17	\$72.83	\$72.83
Gold	Mar. 25	Mar. 17	Mar. 24
	\$132.75	\$148.90	\$152.75

\*For the preceding Tuesday.

Note: The indexes are, respectively, those of the U.S. Bureau of Labor Statistics, Dow-Jones, and *Iron Age*. The spot-market and futures indexes are converted so that their August 1939 daily averages equal 100. The steel-scrap index is a composite price for No. 1 heavy melting scrap. The gold price is the final fixing in London.

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