



# Business Cycle Indicators

A monthly report from The Conference Board

## GLOBAL INDICATORS PROGRAM

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The leading index increased again in December and November's increase was revised up slightly. These consecutive increases follow five consecutive declines, and the weakness in the leading indicators has become somewhat less widespread. It is now more likely that the five-month decline in the leading index was only a pause in the rising trend that has been underway since March 2003.

The coincident index, an index of current economic activity, increased again in December, and the strength in the coincident index continues to be widespread. At the same time, real GDP growth in the third quarter was revised up slightly to a 4 percent annual rate, a pickup from 3.3 percent growth in the second quarter.

The growth rate of the leading index slowed below its long-term trend (a 1.5 percent annual rate) in the second half of 2004, but not to a rate that has historically been associated with a recession. The behavior of the leading index since the middle of 2004 is consistent with the economy continuing to expand in the near term, but more slowly than its long-term trend rate.

## About Business Cycle Indicators

This report is an exciting complement to the Board's economics program. To ensure that Business Cycle Indicators is one of the most useful resources for monitoring current economic conditions, suggestions pertaining to content are welcomed and should be addressed to Ataman Ozyildirim at The Conference Board, or sent via e-mail to [indicators@conference-board.org](mailto:indicators@conference-board.org). For inquiries about subscriptions, call Customer Service at 212 339 0345.

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## Business Cycle Indicators

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## The Cyclical Indicator Approach

The business cycle indicators are a group of statistical time series that have proven useful in analyzing the alternating waves of economic expansion and contraction known as the business cycle. The charts and data tables in this publication provide a broad range of information about the business cycle, past and present. In particular, the charts offer easy comparisons between the current business cycle and those of the previous three or four decades.

The indicator approach was originated in the mid 1930s by economists at the National Bureau of Economic Research. This research explores patterns of economic fluctuation that consist of expansions (periods of positive growth in general economic activity), followed by recessions (contractions in economic activity), which then merge into the expansion phase of the next cycle.

### Timing Classifications

Based on the timing of their movements, the cyclical indicators are classified into three categories: leading, coincident, and lagging. The leaders are those series that tend to shift direction in advance of the business cycle; for this reason they get the lion's share of the attention. The coincident indicators, such as employment and production, are broad series that measure aggregate economic activity; thus they define the business cycle. Lagging indicators tend to change direction after the coincident series; they are used to confirm turning points and to warn of structural excesses and imbalances that are developing within the economy.

With few exceptions, the cyclical indicators included in this publication have been subjected to, and survived, a half-dozen statistical and economic tests: (1) **conformity** to the general business cycle, (2) **consistent timing** as a leading, coincident, or lagging indicator, (3) **economic significance** based on generally accepted business cycle theories, (4) **statistical adequacy** by way of a reliable data-collection process, (5) **smoothness** in month-to-month movements, and (6) **currency** through a reasonably prompt publication schedule. Since no single time series fully qualifies as an ideal cyclical indicator, it is important to analyze groups of indicators and to look for consistent or common patterns.

### Composite and Diffusion Indexes

The leading, coincident, and lagging composite indexes are useful summary measures of the cyclical indicators because, as averages, they tend to smooth out much of the volatility of individual series. Diffusion indexes, which measure the proportion of a set of indicators that is rising, are useful because they indicate the extent, or breadth, of a particular business cycle movement. (The individual series that make up the leading, coincident, and lagging composite indexes are listed in the table on page 26.)

The coincident index has a good record of turning at the same time as the general economy. It also rises and falls at about the same pace as the Gross Domestic Product (GDP). The leading index has turned down before all recessions, but sometimes gives a false signal. The lagging index has the most inconsistent record and receives limited attention. The ratio of the coincident index to lagging index is often used, however, as a measure of cyclical balance and tends to lead turning points in the coincident index.

It is often reported that a three-month decline in the leading index signals a recession. However, few economists actually use such a simple and inflexible rule. Historical analysis shows that a decline of between 1 and 2 percent for the leading index, coupled with declines in at least half of the components during a six-month period, is a reasonable, albeit not perfect, criterion for a recession warning. Nonetheless, the U.S. economy is continuously evolving and is far too complex to be summarized by one economic series, even a composite index. This publication includes a broad range of series indispensable for monitoring the business cycle.

# 2005 Annual Benchmark Revisions to the Composite Indexes

The January 20, 2005, release of The Conference Board's U.S. composite indexes of leading, coincident, and lagging indicators through December 2004 incorporated annual benchmark revisions. Benchmark revisions have long been part of the index methodology and were adopted to avoid numerous minor revisions to the index during the course of the year. This process essentially updated the composite indexes to include the revisions made to the history of the components in the past year. The monthly updates made to the composite indexes throughout the year only included revisions to the underlying component data going back six months. The composition of the indexes was not altered and the data revisions were very minor. As a result, the cyclical performance of the indexes

was not affected. The charts on the next page show that the effect of the benchmark revisions on the composite indexes is minor, the cyclical properties of the composite indexes remain the same after the benchmark revisions, and their turning points have not changed. Only the coincident index showed a noteworthy change during the recovery period of the current cycle, which is briefly discussed below and will be the subject of next month's article.

## Standardization Factors

The standardization factors are updated at the same time annual benchmark revisions are undertaken. The factors for the leading index were calculated using 1984–2003 as the sample period for measuring volatility. (A separate set

of factors for the 1959–1983 period is available upon request.) The primary sample period for the coincident and lagging indexes was 1959–2003. Last year's standardization factors were based on the period from 1959–2002. The table on this page shows the standardization factors used in 2004 and the new factors for 2005. The standardization factors do not change very much from year to year. The revisions to the composite indexes are small both because of the standardization factors and the fact that the underlying data have not been revised significantly.

The contribution of each component in a composite index is calculated using a symmetric percent change formula. Standardization factors are also used to equalize the volatility of each component's contribution so that the components that have higher variability do not dominate the resulting index. These standardization factors are computed by inverting the standard deviations of the monthly changes in each component and normalizing them to sum to one.<sup>1</sup> Hence, these factors only take into account the relative volatility of the component indicators. A relatively more volatile component has a smaller standardization factor but this would not necessarily mean that it has less significance to the performance of the index. Components that are wider in coverage, however, typically tend to be less volatile, which results in larger standardization factors for those components. The current index methodology treats the components as having equivalent importance to the performance of the corresponding index and does not assign weights to each component.

## U.S. Composite Indexes: Components and Standardization Factors

	2004	2005
<b>Leading Index</b>		
1 Average weekly hours, manufacturing	0.1965	0.1936
2 Average weekly initial claims for unemployment insurance	0.0252	0.0255
3 Manufacturers' new orders, consumer goods and materials	0.0588	0.0587
4 Vendor performance, slower deliveries diffusion index	0.0292	0.0293
5 Manufacturers' new orders, nondefense capital goods	0.0146	0.0149
6 Building permits, new private housing units	0.0202	0.0205
7 Stock prices, 500 common stocks	0.0291	0.0291
8 Money supply, M2	0.2774	0.2778
9 Interest rate spread, 10-year Treasury bonds less federal funds	0.3303	0.3295
10 Index of consumer expectations	0.0188	0.0185
<b>Coincident Index</b>		
1 Employees on nonagricultural payrolls	0.5235	0.5234
2 Personal income less transfer payments	0.2141	0.2150
3 Industrial production	0.1467	0.1459
4 Manufacturing and trade sales	0.1157	0.1157
<b>Lagging Index</b>		
1 Average duration of unemployment	0.0378	0.0379
2 Inventories to sales ratio, manufacturing and trade	0.1249	0.1245
3 Labor cost per unit of output, manufacturing	0.0648	0.0644
4 Average prime rate	0.2788	0.2814
5 Commercial and industrial loans	0.0968	0.0936
6 Consumer installment credit to personal income ratio	0.2019	0.2014
7 Consumer price index for services	0.1950	0.1968

<sup>1</sup> For more information on the standardization factors and The Conference Board's composite index methodology, please refer to Business Cycle Indicators Handbook (2001) or our Web site: [www.conference-board.org/economics/bci](http://www.conference-board.org/economics/bci)

## The Effect of the Benchmark Revision on the Coincident Index

Since the coincident index exhibits behavior that is significantly different than in previous recoveries, it is worth taking a closer look at it in light of the benchmark revisions. The coincident index is a measure of economic activity and has been devised in the system of business cycle indicators as the target of the leading index. It uses the four coincident indicators—industrial production, real personal income less transfer payments, nonagricultural employment, and real manufacturing and trade sales—that have been

traditionally used in the indicator approach developed by the National Bureau of Economic Research (NBER) to determine business cycle peaks and troughs for the U.S. economy. The NBER Business Cycle Dating Committee still bases its decisions on recession dates on these four main coincident indicators as well as several other indicators.

The coincident index correctly reflects the sluggish recovery period the U.S. economy experienced following the 2001 recession trough. Although real GDP started rising after the trough, the

coincident index remained flat through mid-2003. After the benchmark revisions, the revisions in the underlying data, especially in personal income and employment, accentuate the lackluster recovery period observed in the coincident index. The lack of growth in the coincident index is especially stark when compared to the behavior of real GDP growth both during and after the recession. Next month's article will discuss the behavior of the coincident index during this period and compare it to recent developments in real GDP growth and productivity growth.

2005 Annual Benchmark Revisions to U.S. Composite Indexes

