

# The NBER's Business-Cycle Dating Procedure

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The committee has determined that a trough in economic activity occurred in November 2001. For a detailed discussion of the reasoning behind this decision, see the committee's announcement of the trough at <http://www.nber.org/cycles/july2003/>. The trough marks the end of the recession that began in March 2001. The 2001 recession thus lasted eight months, which is slightly less than the average duration of recessions since World War II. The postwar average, excluding the 2001 recession, is eleven months.

A recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales. A recession begins just after the economy reaches a peak of activity and ends as the economy reaches its trough. Between trough and peak, the economy is in an expansion. Expansion is the normal state of the economy; most recessions are brief and they have been rare in recent decades.

In choosing the date of the trough, the committee followed its usual procedures. Because a recession influences the economy broadly and is not confined to one sector, the committee emphasizes economy-wide measures of economic activity. The committee views real GDP as the single best measure of aggregate economic activity. In determining whether a recession has occurred and in identifying the approximate dates of the peak and the trough, the committee therefore places considerable weight on the estimates of real GDP issued by the Bureau of Economic Analysis of the U.S. Department of Commerce. The traditional role of the committee is to maintain a monthly chronology, however, and the BEA's real GDP estimates are only

available quarterly. For this reason, the committee refers to a variety of monthly indicators to choose the exact months of peaks and troughs.

It places particular emphasis on two monthly measures of activity across the entire economy: (1) personal income less transfer payments, in real terms and (2) employment. In addition, the committee refers to two indicators with coverage primarily of manufacturing and goods: (3) industrial production and (4) the volume of sales of the manufacturing and wholesale-retail sectors adjusted for price changes. The committee also looks at monthly estimates of real GDP such as those prepared by Macroeconomic Advisers (see <http://www.macroadvisers.com>). Although these indicators are the most important measures considered by the NBER in developing its business cycle chronology, there is no fixed rule about which other measures contribute information to the process.

Figure 1 shows the recent movements of quarterly real GDP superimposed on the average movement around troughs over the previous six recessions. GDP reached a peak in the fourth quarter of 2000. This was followed by contraction during the first three quarters of 2001 and growth since then. The fact that this broad and reliable indicator of macroeconomic activity surpassed its previous peak in the fourth quarter of 2001 was a key reason that the committee felt that the recession that began in March 2001 had ended. The committee decided that following NBER procedures, a renewed decline in activity would be identified as a new recession rather than a continuation of the 2001 downturn. The fact that quarterly real GDP grew very strongly in the fourth quarter of 2001 also helped to limit the possible months that could be identified as the trough. The committee felt that the recovery must have begun before December 2001 for GDP to have grown so rapidly in the fourth quarter. According to revised data released in June 2003 (<http://www.bea.doc.gov/bea/newsrel/gdp103p.htm>), real GDP increased at an annual rate of 4.0 percent in the third quarter of 2002, 1.4 percent in the fourth quarter, and 1.4 percent in the first quarter of 2003.

Figure 2 shows the movements in real personal income less transfers. The behavior of this series is consistent with both the identification of a trough and the placement of the trough in November 2001. Real personal income fell in early 2001. It reached its low point in October 2001. However, because it grew only a small amount between October and November 2001, the NBER methodology indicates that it reached its trough in November. Since then, personal income less transfers generally rose through January 2003, fell in February and March, but rose in April and May, the most recent reported months. A comparison of Figures 1 and 2 shows that personal income has grown less rapidly than real GDP. The reasons for this are discussed in the frequently asked question on this topic below.

Figure 3 shows the behavior of payroll employment. The fluctuations in this series are quite different from those in the broader, output-based measures. Employment reached a peak in February 2001 and declined through July 2002. It rose slightly through November, took a sharp downturn in December, rose again in January 2003, but since then has declined through June 2003, the most recent reported month. It is now 394,000 below the start of the year, and 2.6 million below the February 2001 peak. The fact that employment has continued to decline while

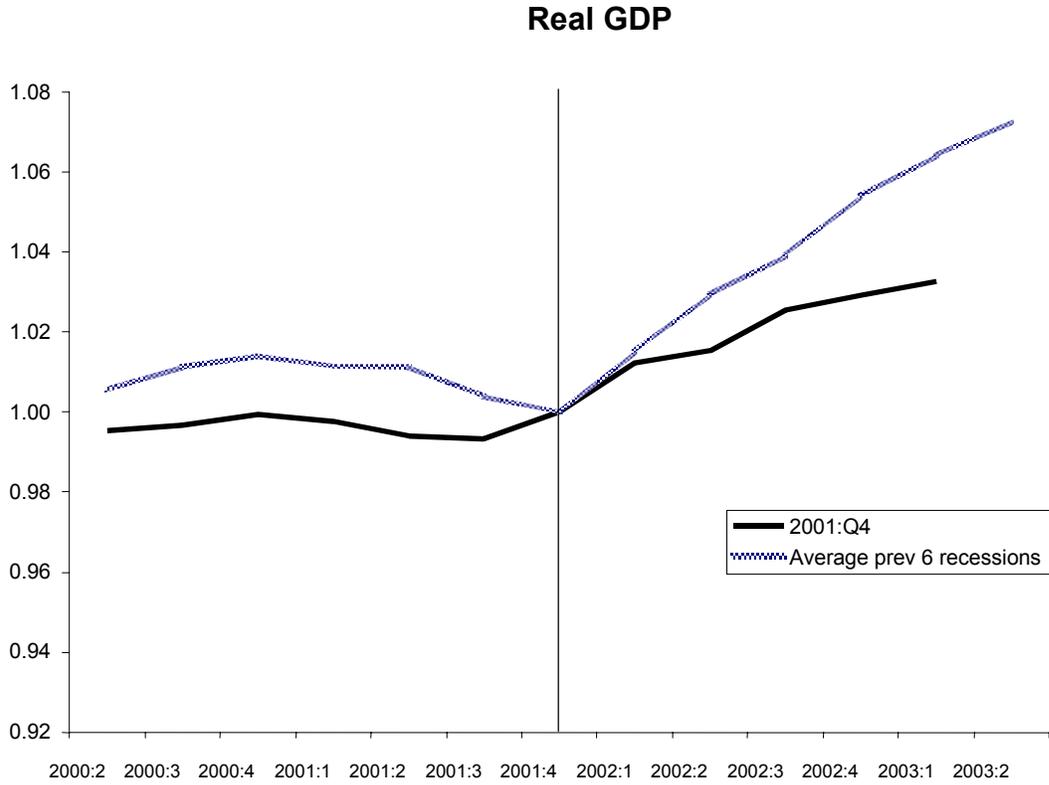
output-based measures have risen reflects the fact that productivity has risen substantially since late 2001. The divergent behavior of output and employment was a key reason why the committee waited a long time before identifying the trough.

The behavior of other monthly series is also consistent with the identification of the trough in late 2001. Industrial production fell until December 2001 and then rose rapidly until July 2002. It has fallen slightly since then.

Real manufacturing wholesale-retail sales reached its low in September 2001. It then recovered substantially in October 2001, only to fall again in November. As discussed in the trough announcement, the NBER methodology holds that extreme events, such as strikes and natural disasters, that affect particular monthly observations should be downweighted in identifying business cycle turning points. For this reason, the committee emphasized the November 2001 trough in this series, rather than the dramatic decline in sales following the tragic events of September 11<sup>th</sup>. This series has generally risen since September 2001. It fell sharply in February 2003, but rose substantially in March, the most recent reported month.

The committee also looks at monthly estimates of real GDP provided by Macroeconomic Advisors. This series reached its low in September 2001 and has generally been growing since then. The fact that monthly GDP rose dramatically in December 2001 reinforced the committee's decision that the trough occurred in November. Monthly real GDP fell slightly in March and April 2003, the most recent reported months.

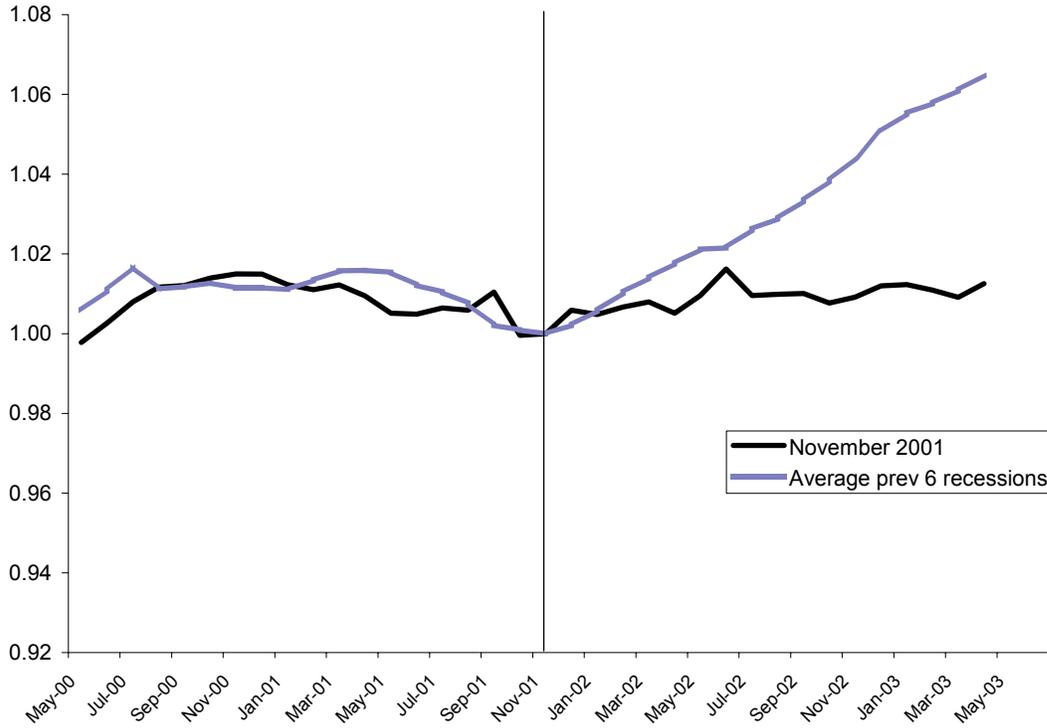
For more information, see the FAQs at the end of this memo, and also see <http://www.nber.org/cycles/main.html>. An Excel spreadsheet containing the data and figures for a number of indicators of economic activity considered by the committee is available at that page as well.



**Figure 1. Quarterly Real GDP**

The dark line shows the movement of quarterly real GDP in 2000-2003 and the shaded line the average over the previous 6 recessions. Source: Bureau of Economic Analysis, U.S. Department of Commerce (<http://www.bea.doc.gov/>).

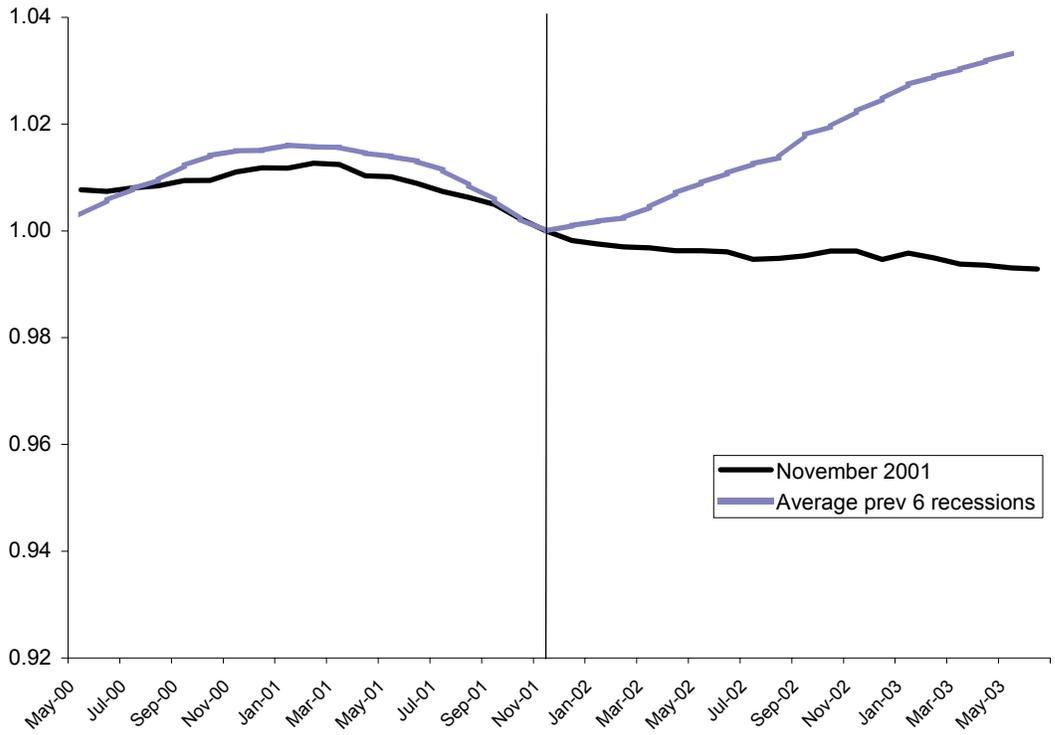
### Real Personal Income less Transfers



**Figure 2. Real Personal Income Less Transfers**

The dark line shows the movement of income from May 2000 to the present and the shaded line the average over the previous 6 recessions. Source: Bureau of Economic Analysis, U.S. Department of Commerce (<http://www.bea.doc.gov/>).

### Payroll Employment



**Figure 3. Employment**

The dark line shows the movement of employment from May 2000 to the present and the shaded line the average over the previous 6 recessions. Source: Bureau of Labor Statistics, U.S. Department of Labor (<http://stats.bls.gov/>).

## FAQs

**Q: The financial press often states the definition of a recession as two consecutive quarters of decline in real GDP. How does that relate to the NBER's recession dating procedure?**

**A:** Most of the recessions identified by our procedures do consist of two or more quarters of declining real GDP, but not all of them. According to current data for 2001, the present recession falls into the general pattern, with three consecutive quarters of decline. Our procedure differs from the two-quarter rule in a number of ways. First, we consider the depth as well as the duration of the decline in economic activity. Recall that our definition includes the phrase, “a significant decline in economic activity.” Second, we use a broader array of indicators than just real GDP. One reason for this is that the GDP data are subject to considerable revision. Third, we use monthly indicators to arrive at a monthly chronology.

**Q: Could you give an example illustrating this point?**

**A:** On July 31, 2002, the Bureau of Economic Analysis released revised figures for gross domestic product that showed three quarters of negative growth in 2001—quarters 1, 2 and 3—where previously the data had shown only quarter 3 as negative. This revision shows why the committee does not rely on a simple rule of thumb such as two consecutive quarters of negative growth, nor relies on GDP data alone, in making its determinations, but rather looks at a broader array of statistics. In November 2001, the committee determined the date of the peak in activity in March 2001 using its normal indicators. The two-quarter-decline rule of thumb would not have allowed the declaration of the recession until August 2002, let alone a declaration that it had begun early in 2001, as in the statement that the committee made in November 2001. It was not until eight months later that revisions in the GDP data showed declining real GDP for the first, second, and third quarters of 2001.

**Q: Isn't a recession a period of diminished economic activity?**

**A:** It's more accurate to say that a recession—the way we use the word—is a period of *diminishing* activity rather than *diminished* activity. We identify a month when the economy reached a peak of activity and a later month when the economy reached a trough. The time in between is a recession, a period when the economy is contracting. The following period is an expansion. Economic activity is below normal or diminished for some part of the recession and for some part of the following expansion as well. Some call the period of diminished activity a *slump*.

**Q: How does the NBER balance the differing behavior of employment and output?**

**A:** The NBER considers real GDP to be the single measure that comes closest to capturing what it means by “aggregate economic activity.” The committee therefore places considerable weight

on real GDP and other output measures. Following the precedents established in many decades of maintaining its business cycle chronology, however, the committee considers a wide range of indicators of economic activity. There is no fixed rule for how the different indicators are weighted.

**Q: The most recent data indicate that since November 2001, the unemployment rate has risen from 5.6 percent to 6.4 percent and payroll employment has fallen by almost a million jobs. How can the NBER say that the economy began an expansion in November 2001?**

**A:** The NBER defines expansions and recessions in terms of whether aggregate economic activity is rising or falling, and it views real GDP as the single best measure of economic activity. Real GDP has risen substantially since November 2001. However, this growth in real GDP has resulted entirely from productivity growth. As a result, the growth in real GDP has been accompanied by falling employment. Unemployment has risen because of falling employment and because the labor force has been rising.

While the NBER has traditionally placed substantial weight on output measures, one could instead define expansions and recessions in terms of whether the fraction of the economy's productive resources that is being used is rising or falling (in which case the behavior of the unemployment rate would be a critical guide to whether the economy was in expansion or recession), or in terms of whether the quantity of productive resources being used was rising or falling (in which case employment would be a critical indicator). Either of these alternative definitions is defensible, and either might lead to the conclusion that the recent recession lasted much longer than 8 months and that it might not have ended yet. But if the NBER adopted either definition in dating the current recession, it would be dating the recession in a way that was inconsistent with the procedures it has used to date earlier recessions.

**Q: You emphasize the payroll survey as a source for data on economy-wide employment. What about the household survey?**

**A:** Although the household survey is a large, well-designed probability sample of the U.S. population, its estimates of total employment appear to be noisier than those from the payroll survey. The two sources agree reasonably closely about the movement of employment in the 2001 recession.

**Q: How do the movements of unemployment claims inform the Bureau's thinking?**

**A:** A bulge in jobless claims would appear to forecast declining employment, but we do not use forecasts and the claims numbers have a lot of noise.

**Q: What about the unemployment rate?**

A: Unemployment is generally a lagging indicator. Its rise from a very low level to date is consistent with the employment data.

**Q: How do structural changes in the economy in the 1990s affect the NBER's method for dating business cycles? The Bureau notes that industrial production measures a declining part of the economy. What other substitutes for output bear watching, particularly with regard to service-sector activity?**

A: At a quarterly frequency, real GDP is very informative. Real personal income and economy-wide employment are the most important monthly indicators. As described above, the committee also looks at monthly estimates of real GDP. Manufacturing, while a declining fraction of the U.S. economy, remains an important and cyclically sensitive sector and so warrants continued attention.

**Q: Can you describe the monthly real GDP estimates?**

A: The specific series the committee has been looking at is augmented monthly GDP prepared by Macroeconomic Advisers, a consulting firm. Many of the ingredients of the quarterly GDP figures are published at a monthly frequency by the government statistical agencies that produce them. Macroeconomic Advisers aggregates them, and then uses a simple statistical procedure to augment the resulting totals so that the monthly estimates for each quarter are consistent with the Commerce Department's official quarterly figure. The monthly GDP numbers are fairly noisy and are subject to considerable revision.

**Q: Why has the behavior of real GDP and real personal income been so different in the recent period?**

A: The primary reason is that personal income includes interest receipts that have fallen in real terms; there is no counterpart in GDP. Another factor is the rise in the price index for consumption, used to state personal income in real terms, in relation to the price index used to state GDP in real terms. A number of other smaller factors also contributed to the unusually different behavior of real personal income.

**Q: Is the NBER committee considering re-dating the beginning of the recession, based on the revised GDP data which seem to indicate that the peak of the last cycle was reached before your current date? Has the committee ever before changed a cycle date based on new information?**

A: In the past, the NBER has made some small changes to cycle dates, most recently in 1975. No changes have occurred since 1978 when the Business Cycle Dating Committee was formed and the current chairman was appointed. The committee would change the date of a recent peak or trough if it concluded that the date it had chosen was incorrect. However, the committee believes

that consideration of revising the date of the peak should wait until the results of the major rebenchmarking of the GDP estimates currently being undertaken by the Bureau of Economic Analysis are announced in December 2003.

**Q: When did the NBER first establish its business cycle dates?**

**A:** The NBER was founded in 1920, and published its first business cycle dates in 1929.

**Q: When was your committee formed?**

**A:** When Martin Feldstein became president of the NBER in 1978. Robert Hall has chaired the committee since its inception.

**Q: How is the committee's membership determined?**

**A:** The President of the NBER appoints the members, who include directors of the macro-related programs of the NBER plus other members with specialties in business-cycle research.