

Economic Brief

August 2010, EB10-08

When Did the Recession End?

By Renee Courtois

Although the National Bureau of Economic Research has not yet officially announced the end of the recession that started in December 2007, the data series commonly used to date recessions seem to preliminarily suggest that it ended in the middle of last year. However, certain areas of the economy, particularly employment and personal income, remain relatively sluggish.

Many economists judge that the recession is likely over, but the only official word is on when the recession started: Economic activity peaked in December 2007. The recession's start was officially identified one year later, in December of 2008. When the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) last met in April 2010, it reviewed data revisions and reaffirmed only the start date.

The NBER always identifies a business cycle turning point after a lag. The end of the 2001 recession in November of that year was not announced until July 2003, 20 months later. Speed, though, is not the goal of the NBER recession-dating committee. Rather, accuracy and reliability take precedence. Preliminary data often must be extrapolated, and are therefore prone to potentially substantial revisions that could provide a different message. The NBER also makes sure that an apparent business cycle turn constitutes a true change in trend rather than a small or temporary deviation. So, while many of the economic indicators that will influence the judgment have been trending up, we continue to await official word.

Recession Dating Methods

Recessions are defined by the NBER's committee as a decline in economic activity that is both

significant and spread widely across the economy. This definition is necessarily broad and subjective since there is no reason to expect that each business cycle will behave consistently. For instance, the popular rule of thumb of "two or more consecutive quarters of negative GDP growth" failed to accurately describe the 2001 recession.

Before 1979, there were no formal announcements of turning points. The NBER committee was formed in 1978 to analyze data and chronicle facts about business cycles. It relies on a wide range of monthly and quarterly indicators published by government agencies, particularly those emphasizing gross domestic product, personal income, employment, industrial production, and sales volume from manufacturing and wholesale retail sectors. The committee also considers the depth and duration of declines; for example, a somewhat moderate pause in activity likely will not constitute a recession, nor a moderate improvement a recovery. The committee fixes the date, in retrospect, at which economic activity started to rise or fall, and the announcements often lag the actual turn in the economy by about a year. Since its inception, the committee has never revised the identified recession dates.

While the NBER methodology dates from the 1920s, it was detailed in a 1946 book by Arthur Burns and Wesley Mitchell titled *Measuring Business Cycles*. Though today's economy has dramatically changed from the economy of that era, the approach still underpins business cycle analysis. The economists saw that key indicators moved together, and agreed that a coordinated decline of at least six months would usually constitute a recession. But even earlier, economist and presidential adviser Willard Thorp had compiled records of economic changes of many countries. He then researched and wrote the *Business Annals*, published by the NBER in 1926. The annals summarized and interpreted the economy using business, trade, and press reports from 1790 through 1925 for the United States and Great Britain. A second NBER effort collected annual data series, where available, that complemented Thorp's qualitative information. Together with the annals, these data enabled the NBER to classify historical conditions using terms such as prosperity, depression, recession, or revival. Sometimes adjectives such as "deep" or "mild" were added.

Historical business cycle dates have been questioned by economic historians. For instance, economist Christina Romer, currently chair of the Council of Economic Advisers, notes that dates for pre-1927 cycles were established long before the procedures outlined in *Measuring Business Cycles*. Her research also identified peaks and troughs between 1884 and 1940 that differ from those determined by the NBER.¹

The lag associated with identifying turning points in the business cycle has led some economists to develop timelier methods that can provide real-time indicators of activity rather than backward-looking diagnoses of business cycles. These methods use algorithms or statistical models. Economist James Hamilton of the University of California, San Diego, recently noted that such models can have the added benefit of being apolitical. Although no one suggests the NBER's dates are based on political considerations, it is conceivable that the timing of announcements around election cycles could be perceived as such. The models may also clarify the dating

procedure. Hamilton discussed many such efforts in a recent working paper.²

One limitation of these models is that fundamental economic relationships are subject to change. An ostensibly objective method for dating recessions may include less scope for acknowledging an unusual characteristic in a given business cycle, and may therefore produce false positives or negatives. For that reason, such models are revised and reworked often to improve performance. Timely but inflexible approaches should be viewed as a complement, not a substitute, to the lagged but more inclusive method used by the NBER.³

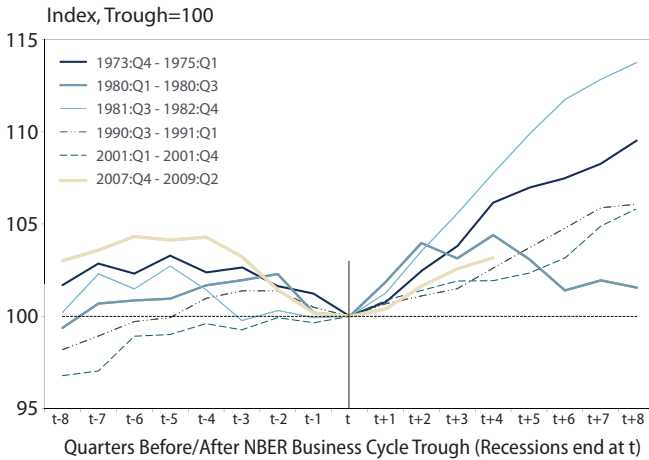
When Did This Recession Likely End?

Loosely following the NBER's recession dating method, we look at the movement of several broad macroeconomic data series to judge when the recession that started in December 2007 likely reached its trough.

Specifically, we compare past business cycle troughs to the most recent recession for several data series. To do this, we index each recession's trough to equal 100, such that values above 100 represent an increase and values below a decrease. (A value of 105, for example, would indicate an increase of 5 percent above a given series' value at the trough for that recession.) These series preliminarily imply that the recent trough occurred in June 2009.

The most obvious series to start with is real gross domestic product (GDP), the broadest measure of economic activity. Figure 1 shows that in the most recent recession (the bold tan line), GDP appeared to hit its trough in the second quarter of 2009. This chart also shows the severity of this recession; the decline in GDP before hitting the trough is indeed greater than in any other recession presented here. (Note that one can also see the "double dip" recession of the early 1980s. The line indicating the recession of 1980 trends down toward the right-hand side of each graph we present here as the economy dipped back toward the recession that started in the second half of 1981.)

Figure 1: Real GDP (relative to trough)



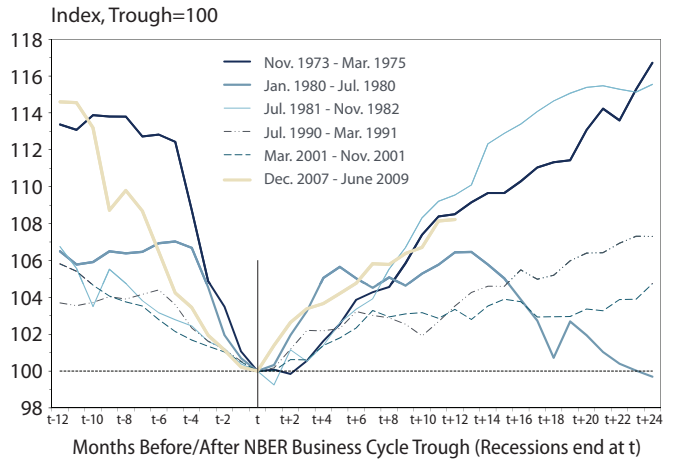
Sources: Bureau of Economic Analysis and Haver Analytics. Calculations by FRB Richmond.

However, GDP data are calculated at a quarterly frequency, so monthly series may provide a more specific estimate of when the recession may have ended. The industrial production index is a monthly measure of broad economic activity, and is plotted in Figure 2. This figure also shows the severity of the recent economic decline. However, like in other relatively steep recessions, the rebound in industrial production has been quite strong in this recovery. A complementary monthly measure of output — real manufacturing and wholesale-retail trade sales adjusted for price changes — covers production in goods and services. Though we do not show it here, this series reflects very similar performance, with a slightly less robust increase after June 2009.

Real personal income (with government transfer payments subtracted for a truer measure), shown in Figure 3, presents a less certain picture. The measure trended down for some time after June 2009 before starting to trend up at the end of 2009. More importantly for present purposes, this is atypical for personal income in recoveries since the measure usually rises, albeit tepidly, following a trough. June 2009 is not an obvious choice of a trough here; if anything, the date merely precedes a slowdown in the decline of this measure.

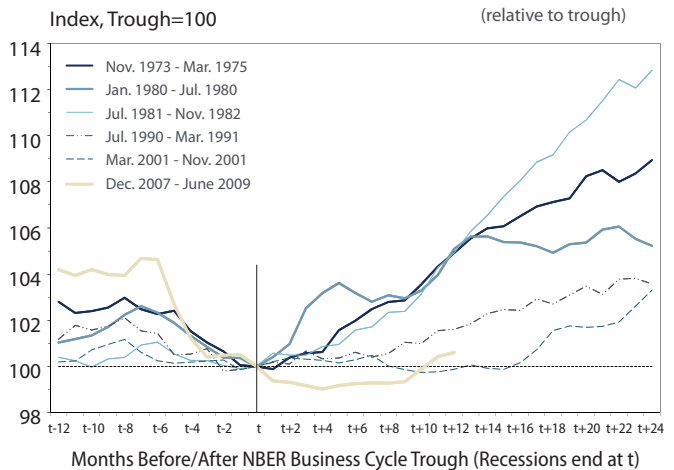
One possible explanation for this — and an example of how a subjective, interpretive approach to recession

Figure 2: Industrial Production (relative to trough)



Sources: Bureau of Economic Analysis and Haver Analytics. Calculations by FRB Richmond.

Figure 3: Real Personal Income Minus Transfer Payments (relative to trough)

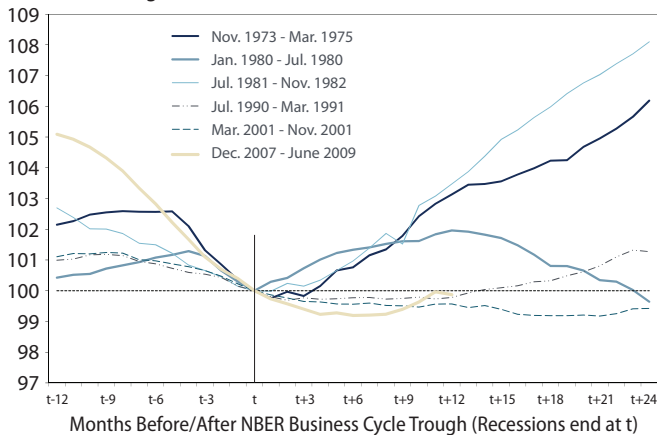


Sources: Bureau of Economic Analysis and Haver Analytics. Calculations by FRB Richmond.

dating can add clarity — is that employment continued to perform poorly after June 2009. The relatively long-lived decline in employment following the trough is common to the recessions of 2001 and the early 1990s, as shown in Figure 4.

Some may find it puzzling that a recession could be considered to be over even as employment, critical to well-being and itself a broad reflection of economic activity, continued to fall. There are three points to make here. First, the NBER's dating criteria place more emphasis on measures of production than measures of labor market strength. Second,

Figure 4: Total Nonfarm Payroll Employment (relative to trough)
Index, Trough=100



Sources: Bureau of Economic Analysis and Haver Analytics. Calculations by FRB Richmond.

the economy can expand even if employment stagnates if productivity also rises; this happened after the 2001 recession and also through the recent recovery. Finally, employment is a lagging indicator. The trough in employment after the 2001 recession occurred a full 21 months after the recession's official end. Employment in the recent episode fell more deeply than in the 2001 recession, but has so far appeared to recover faster, displaying positive growth every month thus far in 2010 except June. These are tentative signs of recovery.

Nonetheless, the reluctant recovery of both employment and personal income imposes some uncertainty on the recession's end date and may be one reason the NBER committee still has not announced an end. Indeed, the committee acknowledged that the poor performance of employment from 2001 to 2003 delayed its announcement at that time. In fact,

it waited until many broad indicators had surpassed their pre-recession peaks, which has not happened in this recession for any of the series examined here.⁴

Conclusion

Recession starts and ends are necessarily confirmed after a lag to take advantage of complete data and to minimize errors. The recent behavior of a broad variety of economic indicators suggests that the recession that started in December 2007 may have ended around the middle of 2009.

How important will the NBER's official announcement be when it comes? Given the lag associated with dating recessions, few economic policies depend critically on the announcement of a recession's official end. (However, it is possible that opinions about the direction of economic policy are affected by the official end, or lack thereof, of a recession.) Likewise, businesses are not likely to wait for the NBER's declaration that a recession has ended to revive output or hire more employees. They tend to rely instead on real-time signals to make production decisions.

Recession dates are useful because they combine a great deal of information into a single variable reflecting an informed judgment that the economy, broadly defined, was contracting at a certain point in time. The historical record allows researchers to compare economic conditions and policies across business cycles. Accuracy and consistency of recession dates lend confidence to those efforts, which, in turn, can guide the substance and timing of policy interventions that treat and mitigate recessions. ■

Endnotes

¹ See Christina Romer, "Remeasuring Business Cycles," National Bureau of Economic Research Working Paper No. 4150, March 1995.

² See James Hamilton, "Calling Recessions in Real Time," University of California–San Diego Working Paper, May 2010.

³ For example, in lieu of an official recession end date from the NBER, the St. Louis Fed's FRED database, a public data repository, currently uses a business cycle dating model developed by economists Marcelle Chauvet and Jeremy Piger to pin the recession's end at July 2009.

⁴ Whether economic activity has reached its pre-recession peak has served as a useful benchmark in the past. In the "double dip" recession of the early 1980s, one recession started only one year after the previous one ended. However, since activity in between rebounded above the pre-recession peak of the first contraction, the committee deemed them two separate events. In today's episode, a subsequent downturn, though not expected, before activity reaches its pre-recession peak could possibly be deemed by the NBER to be a continuation of the recent recession rather than a downturn of its own.

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The author would like to thank Betty Joyce Nash for helpful contributions to this article.



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