What Are the Chances?

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Aquick glance through newspapers and economics web sites yields any number of assessments about the probability that the economy is in or will enter a recession. How are such probabilities calculated? Some are likely back-of-the-envelope calculations; however, several academic researchers have devoted considerable time toward discerning recessions in as timely and accurate a fashion as possible.

One such group of researchers is the National Bureau of Economic Research (NBER) Business Cycle Dating Committee. They report (with some delay) the months when the economy entered and left a recession and are seen by many as the final authority on the timing of business cycle turning points. The committee defines a recession as "a significant decline in economic activity spread across the economy, lasting more than a few months." Because gross domestic product (GDP) data are released quarterly and subject to revisions, they also examine a variety of monthly economic indicators. The five most heavily weighted indicators are real GDP, real personal income less transfer payments, payroll employment, industrial production, and real sales of the manufacturing and wholesale-retail trade sectors.[1]

Econometricians attempt to assess whether the economy is in recession before the NBER releases its turning points. They construct models predicated on the notion that the economy has two unobservable distinct states—expansion and recession. For example, Marcelle Chauvet and James Hamilton use the most recent revisions of GDP, including the advance estimate for the most recent quarter, to obtain an index that reflects the likelihood that the previous quarter was in recession. According to their model, a recession begins when the index rises above 65 percent and ends when it falls below 35 percent. After the advance second-quarter GDP estimate was released in July, the recession probability index for 2007:Q1 was 26.2 percent, up from 16.9 percent for 2006:Q4, but still not at recession level.[2]

Using a similar method, Marcelle Chauvet and Jeremy Piger construct a monthly recession probability series: They use the same main indicators as the NBER, with the exception of real GDP, and estimate each probability by using all available manufacturing and trade sales data along with employment, industrial production, and personal income less transfer payments (the sales data are released a month later). Their probability of recession has been around 1 percent since October 2005.[3]

To compare the different recession probabilities, we plotted the former series along with the quarterly averages of the latter series, as well as the NBER turning points. As the chart shows, the resulting probabilities from both statistical methods spike around the time of the NBER's recession dates. Because the data they use are similar, the Chauvet-Piger method more closely fits the NBER turning points. However, small disparities between the results of each method persist. It may be that only when these recession probabilities are very high—say, above 65 percent—can we have confidence in a model's accuracy. ■

[1] Business Cycle Dating Committee, NBER. "The NBER's Business-Cycle Dating Procedure," released October 21, 2003.

[2] Chauvet, Marcelle and Hamilton, James D. "Dating Business Cycle Turning Points." NBER Working Paper No. 11422, June 2005; and blog post by James Hamilton, July 27, 2007, www.econbrowser.com/archives/2007/07/recession_proba_2.html.

[3] Chauvet, Marcelle and Piger, Jeremy. "A Comparison of the Real-Time Performance of Business Cycle Dating Methods." *Journal of Business and Economic Statistics*, forthcoming; and www.uoregon.edu/~jpiger/us_recession_probs.htm.

Recession Probabilities

SOURCE: James D. Hamilton, www.econbrowser.com; Jeremy Piger, www.uoregon.edu/~jpiger/us_recession_probs.htm.
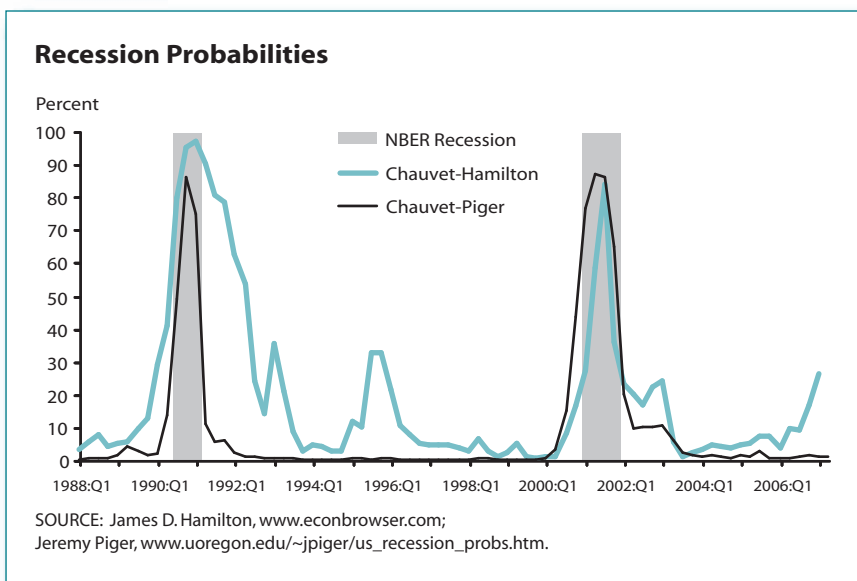
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