FRBSF Economic Letter

Number 2001-29, October 19, 2001

Has a Recession Already Started?

Recession fears greatly intensified after the terrorist attack of September 11, 2001. In a Blue Chip survey of business economists taken one week later, 82% answered yes to the question "Is the U.S. economy currently in a recession?" This *Economic Letter* examines the definition and dating of recessions and argues that, even in light of recent data and events, a recession may not be a certainty because of the lack of synchronization in the declines of various sectors of the economy; however, if a recession does occur, its start could well be dated to last spring.

What is a recession?

Many people associate a recession with bad times—high unemployment, low production, and a generally stagnant economy. Strictly speaking though, a recession is the period when overall economic activity is actually declining—and production, employment, and sales are falling—rather than just anemic or below normal. A recession starts just after a business cycle peak, the high point in the level of economic activity, and ends at the business cycle trough, the low point. The most widely accepted determination of business cycle peaks and troughs is made by the National Bureau of Economic Research (NBER). The NBER's definition of a recession is: ". . . a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale and retail trade."

To understand this definition, it is useful to examine the behavior of the economy during previous recessions. The NBER has designated eight business cycle peaks for the U.S. economy since 1950: July 1953, August 1957, April 1960, December 1969, November 1973, January 1980, July 1981, and July 1990. The panels of Figure 1 chart the behavior of six important measures of the economy at each of these peaks and during the preceding and succeeding 10 months. In each of the 20-month intervals around the eight peaks, the level of each series is normalized to equal 100 at the peak, and its average path is then calculated across episodes. The resulting average historical path of each series around business cycle peaks is shown as a solid line. The gray areas represent the range of maximum and minimum historical outcomes at business cycle peaks. The dashed lines pertain to the current episode, and they will be discussed in detail in the next section.

This section focuses on the historical data. The upper left panel shows real GDP, which has been converted to a monthly frequency by setting each quarter's middle month to the quarterly GDP value and linearly interpolating the remaining months. The average path of real GDP around business cycle peaks, the solid line, displays the three important features of the NBER's definition of a recession: depth, duration, and dispersion. Depth refers to the amplitude of the economic downturn. For a fall in output to be declared a recession, it must be a sizable contraction of the economy. On average, real GDP has fallen about 1-1/2% during the past eight recessions (from 100 to 98.4 in the figure). Duration refers to the length of the recession, which must be a sustained decline. On average, real GDP falls for seven months following a business cycle peak, and a one- or two-month drop in spending and production in an otherwise growing economy, which might result from an economy-wide strike or other disruption, would not qualify as a recession.

Finally, a recession cannot be confined to just one sector of the economy or one region of the country. The effects of a recession are broadly dispersed as is evident in the average decline in real GDP, which is the most comprehensive single measure of national economic activity. During the 1980s and 1990s, the term "rolling recessions" was coined to refer to a situation in which certain regions or industries—for example, manufacturing, oil and natural gas production, and the defense industry—experienced separate individual downturns while the national economy continued to grow. These sequential sectoral downturns did not constitute a national recession.

A popular rule of thumb is that two consecutive quarterly declines in real GDP signal a recession. This rule is consistent with the dispersion and duration requirements for a recession and with the average recessionary path of real GDP; however, two very small quarterly declines might not produce the depth required for a recession. Indeed, in dating business cycles, the NBER does not use this rule or focus on movements in quarterly real GDP. Instead, to produce a monthly chronology of peaks and troughs, the NBER concentrates on *monthly* indicators of economic activity, particularly those shown in Figure 1: total payroll employment, real income, industrial production, and real sales. In

determining the date of a business cycle peak, the NBER examines the individual peaks in these and similar series. If the slowdown in the economy affects many different sectors, then the peaks in these individual series tend to cluster together, and the monthly date of the central tendency of this cluster is designated as the overall business cycle peak. For example, the selection of the July 1990 business cycle peak was a "reasonable compromise," with employment peaking in June of that year, real income in July, real sales in August, and industrial production in September.

The Conference Board's composite coincident index, which averages the four key indicators into one monthly variable, is a useful tool in determining the overall business cycle peak. The composite index smooths out some of the volatility in the individual series and has an average historical contour at business cycle peaks (the solid line in the upper right panel) much like that of real GDP. (For further discussion of the definition and modeling of recessions, see Diebold and Rudebusch 1999.)

The current episode

Do recent economic data suggest that the U.S. economy is in recession now? First consider recent data on the composite coincident index. The index peaked in March of this year and has fallen through August (the last observation available), so the dashed current episode line is normalized and aligned with March 2001 used as the latest business cycle peak (i.e., the index is set to 100 in March). In the current episode, the coincident index suggests that the economy has declined in a very broad-based fashion, so the dispersion criterion for a recession appears satisfied; however, at this point, the decline is neither long enough nor deep enough to satisfy the duration or depth criteria. Thus, whether we are in a recession or not depends on what happens over the coming months. If the index were to drift sideways for a few months and then recover, the current episode would be only an economic pause and not a recession. Alternatively, sizable declines in the coming months would give the downturn the depth and duration of a recession, and the business cycle peak likely would be dated March 2001.

One difficulty in defining the current episode as a recession is that the important individual monthly indicators are displaying an unusually divergent behavior in timing. The left middle panel shows the recent and historical behavior of industrial production. The dashed current episode line is aligned to assume that the overall business cycle peak occurred in March 2001. In the current episode, industrial production peaked in September 2000 and has undergone a sustained (11-month) and significant (5%) decline since then. This decline clearly matches the typical recessionary performance of manufacturing, but it has not been mirrored by the rest of the economy. Industrial production covers only a portion of the economy (about 14% of total employment) and will not by itself be enough to determine the business cycle peak.

The right middle panel displays the most important single indicator for business cycle dating: nonfarm payroll employment. Since March, employment has been falling, which is consistent with a business cycle peak then; however, the declines through September have been much too shallow to indicate a recession. Payroll employment has fallen only 1/3% from its March peak versus an average recessionary fall of 1-1/2% (and the aggregate number of payroll hours worked, a related indicator, has fallen even less).

The lower left panel shows real personal income, which historically does not fall as consistently in recessions as does employment. The latest readings (through August), which were boosted by tax rebate checks, provide little indication of a recession as well. The lower right panel shows real sales through June of this year (the last available month). Sales peaked in August 2000 but fell significantly only during the past few months. On balance, sales have declined about 2% and, like industrial production, have probably breeched the threshold for recessionary declines. However, also like industrial production, this series covers only a limited portion of the entire economy and ignores the service sector.

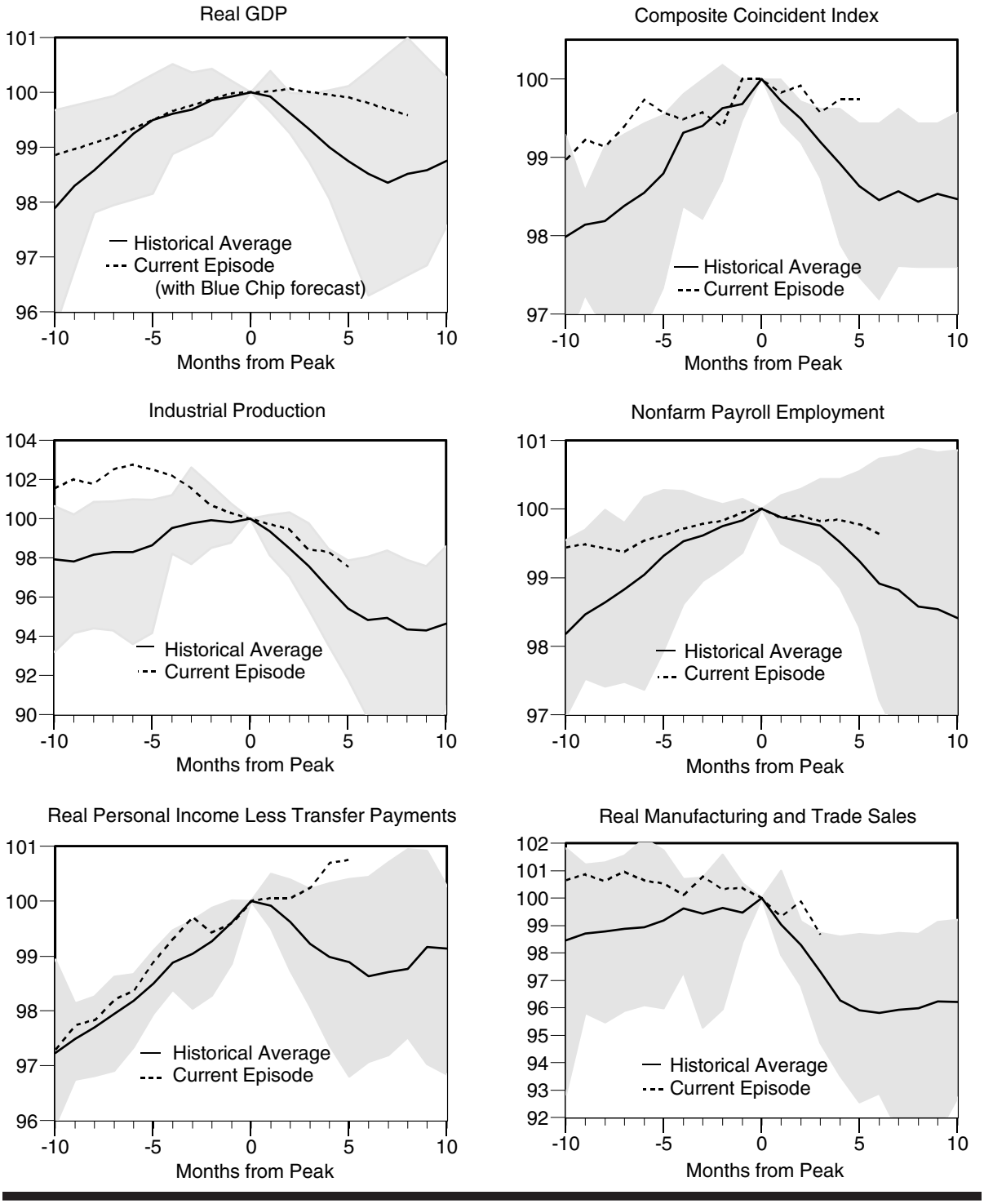
As noted above, if the economy holds steady for a few more months, a recession could be avoided. Alternatively, if economic activity starts to deteriorate more quickly in the months ahead, then it seems likely that a business cycle peak would be designated in March 2001. However, such a date would represent a large compromise among unusually distant turning points in separate economic indicators. The drop in manufacturing and high-tech investment over the past year may be followed now by a downturn in travel and tourist industries, but as in the rolling recessions of the past, these declines may not be synchronized enough to trigger a national recession. This possibility is suggested by the real GDP current episode dashed line (in upper left panel), which includes the latest data and the Blue Chip consensus forecast (i.e., projected declines of 0.6% and 1.3% at an annual rate in 2001.Q3 and 2001.Q4). Although the projected downturn in real GDP is long enough, it is quite mild relative to the historical recessionary experience.

Glenn D. Rudebusch
Senior Research Advisor

Reference

Diebold, Francis X., and Glenn D. Rudebusch. 1999. *Business Cycles: Durations, Dynamics, and Forecasting*. Princeton: Princeton University Press.

Figure 1
Six economic indicators
Indexed levels with peak = 100
Lines for current episode assume peak at March 2001



Research Department

Federal Reserve
Bank of
San Francisco

P.O. Box 7702
San Francisco, CA 94120
Address Service Requested

Printed on recycled paper
with soybean inks

Index to Recent Issues of *FRBSF Economic Letter*

DATE	NUMBER	TITLE	AUTHOR
3/2	01-05	How Sluggish Is the Fed?	Rudebusch
3/9	01-06	The Return of the "Japan Premium": Trouble Ahead for Japanese Banks?	Spiegel
3/23	01-07	Financial Crises in Emerging Markets	Glick/Moreno/Spiegel
3/30	01-08	How Costly Are IMF Stabilization Programs?	Hutchison
4/6	01-09	What's Different about Banks—Still?	Marquis
4/13	01-10	Uncertainties in Projecting Federal Budget Surpluses	Lansing
4/20	01-11	Rising Price of Energy	Daly/Furlong
4/27	01-12	Modeling Credit Risk for Commercial Loans	Lopez
5/4	01-13	The Science (and Art) of Monetary Policy	Walsh
5/11	01-14	The Future of the New Economy	Jones
5/18	01-15	Japan's New Prime Minister and the Postal Savings System	Cargill/Yoshino
5/25	01-16	Monetary Policy and Exchange Rates in Small Open Economies	Dennis
6/1	01-17	The Stock Market: What a Difference a Year Makes	Kwan
6/15	01-18	Asset Prices, Exchange Rates, and Monetary Policy	Rudebusch
7/6	01-19	Update on the Economy	Parry
7/13	01-20	Fiscal Policy and Inflation	Daniel
7/20	01-21	Capital Controls and Exchange Rate Stability in Developing Countries	Glick/Hutchison
7/27	01-22	Productivity in Banking	Furlong
8/10	01-23	Federal Reserve Banks' Imputed Cost of Equity Capital	Lopez
8/24	01-24	Recent Research on Sticky Prices	Trehan
8/31	01-25	Capital Controls and Emerging Markets	Moreno
9/7	01-26	Transparency in Monetary Policy	Walsh
10/5	01-27	Natural Vacancy Rates in Commercial Real Estate Markets	Krainer
10/12	01-28	Unemployment and Productivity	Trehan