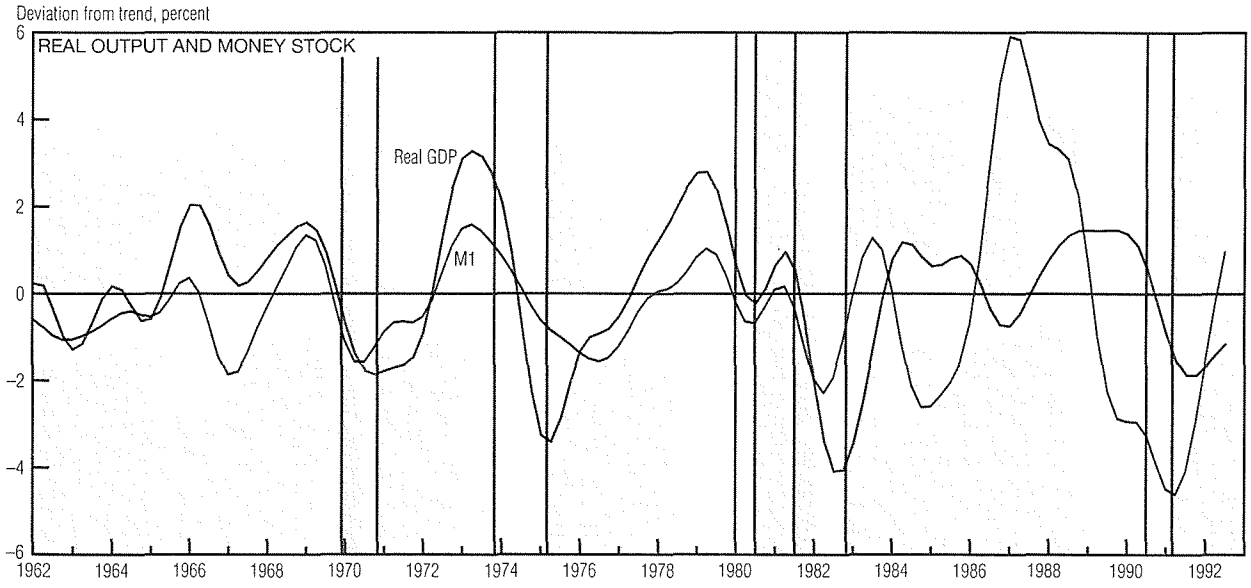
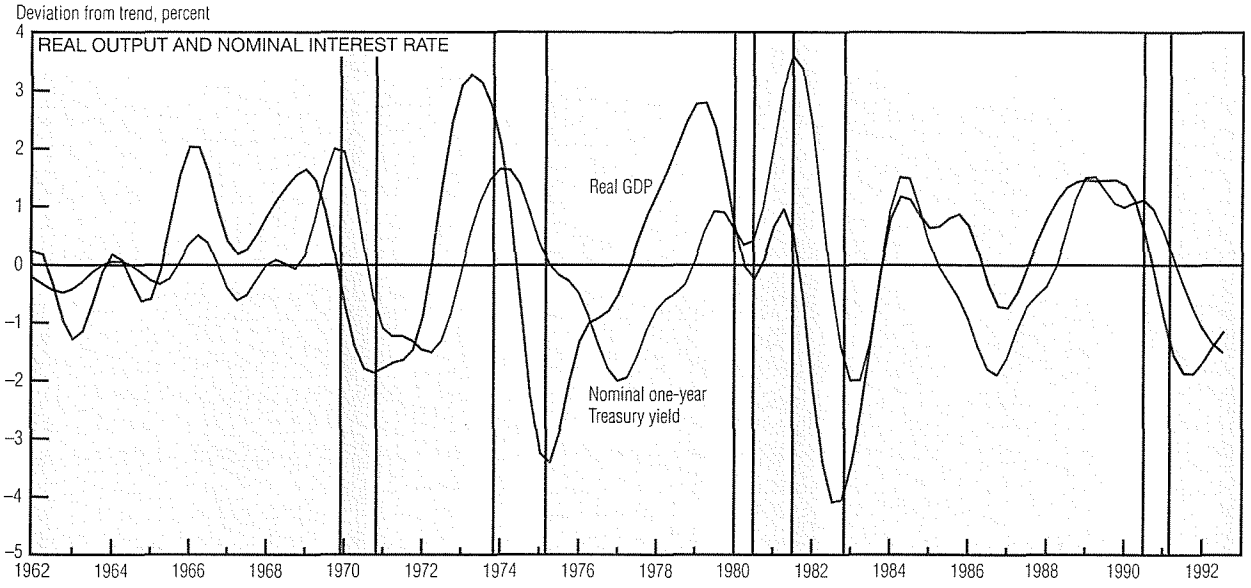
Monetary Policy





NOTE: Shaded areas indicate recessions. All data in the Monetary Policy section represent deviations from long-run trend in percent. The trend is defined using a two-sided filter with 12 leads and lags. For further details on this topic, see R. King and M. Watson, "Money, Prices, Interest Rates, and the Business Cycle," Federal Reserve Bank of Chicago, Working Paper 95-10, July 1995.

SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.

The link between money, prices, interest rates, and the business cycle is the subject of considerable debate among policymakers and economists. Researchers continue to strive for a coherent, tractable model to help them understand the precise mechanism by which monetary policy affects the macroeconomy. Before setting out to develop such a model, researchers must undertake a thorough study of the available data to identify the key features and regularities that a successful model must incorporate.

Movements in macroeconomic variables can be broken down into two broad categories. The cyclical, or high-frequency, component measures the short-run fluctuations of a given variable from quarter to quarter or from year to year. The trend, or low-frequency, component measures the variable's long-run behavior. For these purposes, economists typically define short-run movements as those lasting less than 32 quarters. In contrast, the trend component captures movements over many decades. The trend component of a data series can be identified using statistical techniques to draw a smooth line through the

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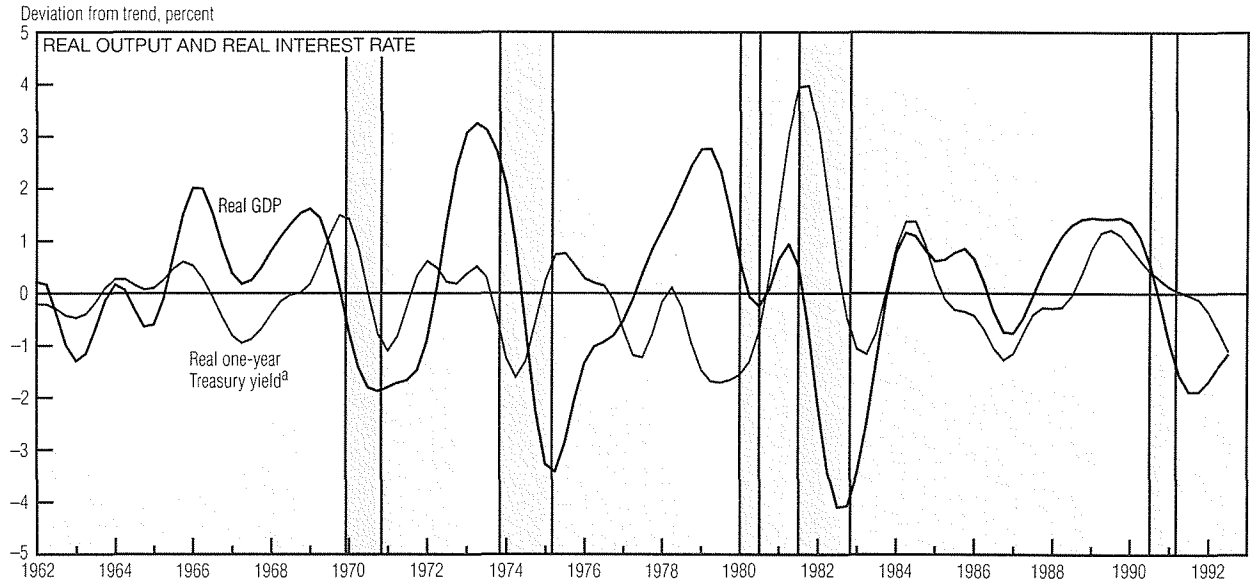
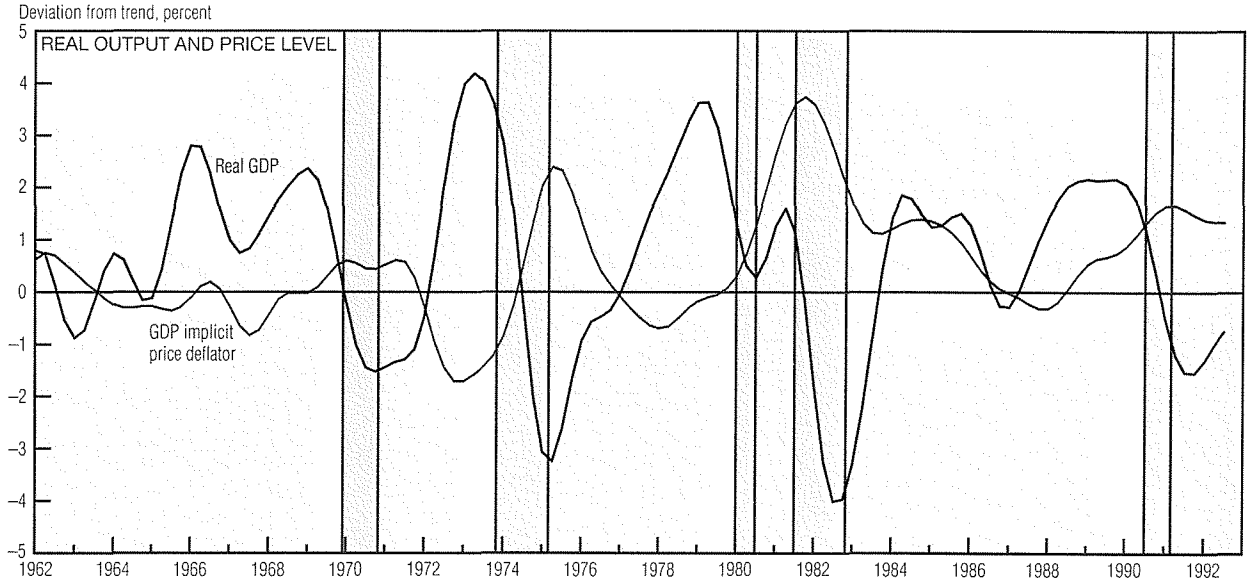
Monetary Policy (cont.)





a. The real one-year Treasury yield is the nominal one-year Treasury yield minus one-year mean inflation expectations as measured by the University of Michigan's Survey of Consumers.
NOTE: Shaded areas indicate recessions.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System; the University of Michigan; and U.S. Department of Labor, Bureau of Labor Statistics.

central tendency of the data. At each point in time, the cyclical component is defined as the deviation of the variable from its long-run trend.

Focusing our attention on the cyclical components of the data reveals some interesting regularities. First, except for a period in the mid-1980s, there is a relatively strong correlation between movements in output (as measured by real GDP) and the nominal money stock (as measured by the M1 aggregate). Moreover, changes in the money stock tend to precede changes in real output, suggesting that the money stock may be a useful leading indicator.

Notice that each of the last five recessions was preceded by a period when the money stock declined relative to trend. But it is important to note that the comovement of money and output need not imply the existence of a causal relationship running from money to output. Indeed, many researchers argue precisely the reverse—that the level of real output determines just how much money people are willing to hold.

A second observation is that interest rates, both nominal and real, tend to rise prior to recessions and thus also behave like leading indicators. Third, the overall level of prices (as measured by the GDP

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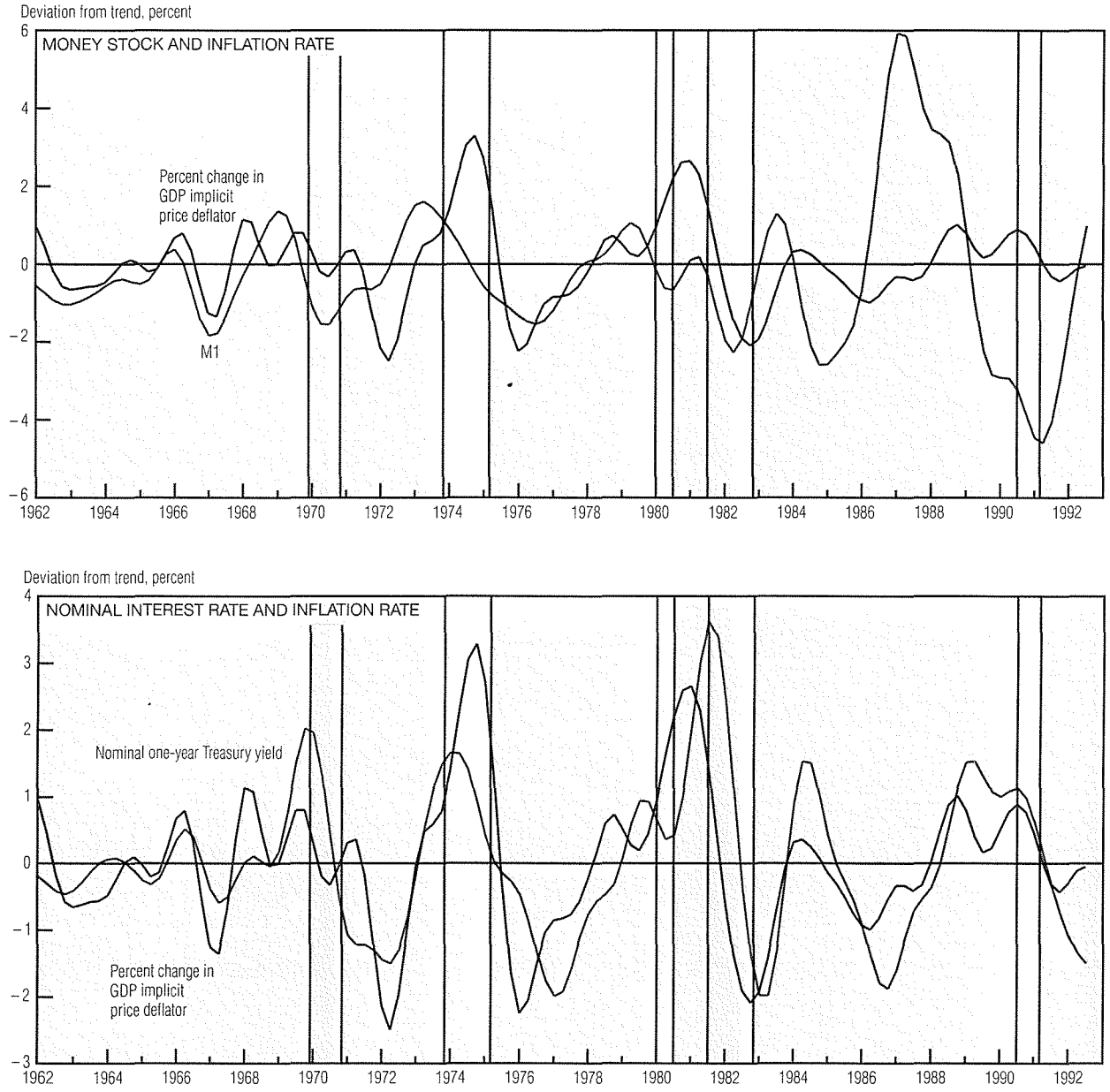

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SOURCES: Board of Governors of the Federal Reserve System; and U.S. Department of Labor, Bureau of Labor Statistics.

implicit price deflator) tends to move opposite to the direction of real output over most of the sample period. This countercyclical behavior of prices is consistent with the view that output fluctuations are largely caused by supply-side disturbances that shift the economy's aggregate supply curve back and forth along a downward-sloping aggregate demand curve.

Countercyclical prices are particularly evident during the 1974 and 1980 recessions. These periods coincided with sharp increases in oil prices, which economists generally interpret as representing large supply shocks.

The money stock and the rate of inflation display strong comovement until 1984, after which the inflation rate stabilized and the money stock experienced large swings above and below trend. This behavior is often attributed to regulatory changes and financial innovations that blurred the distinction between money and other financial assets, thereby affecting people's willingness to hold money. One factor that influences the desire to hold money is the nominal interest rate,

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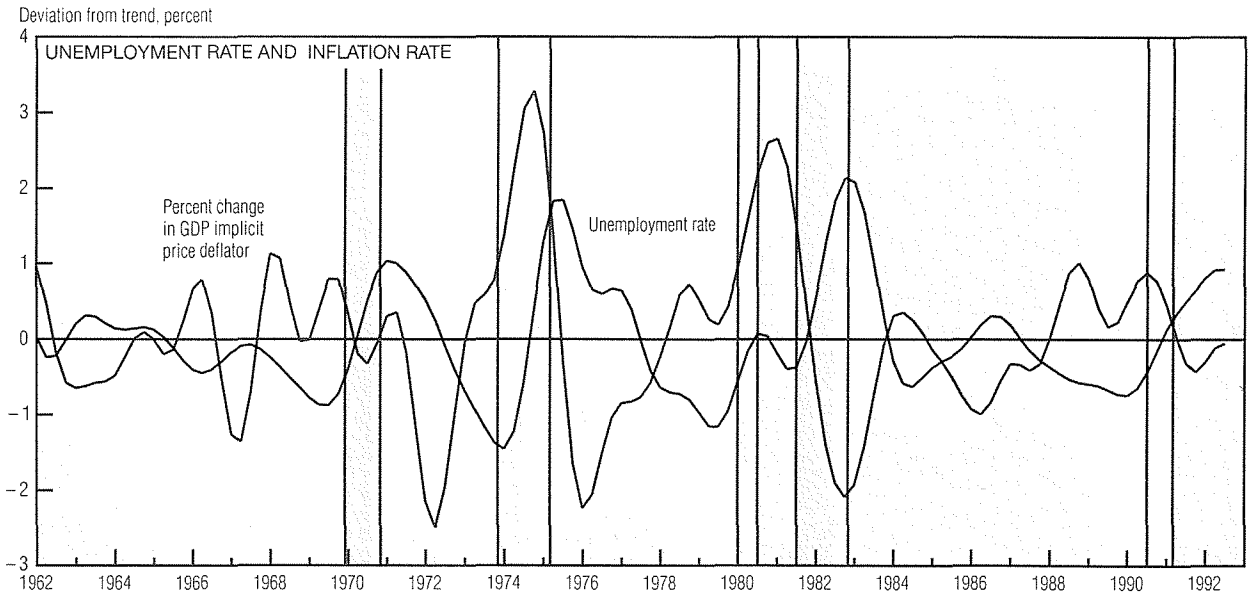

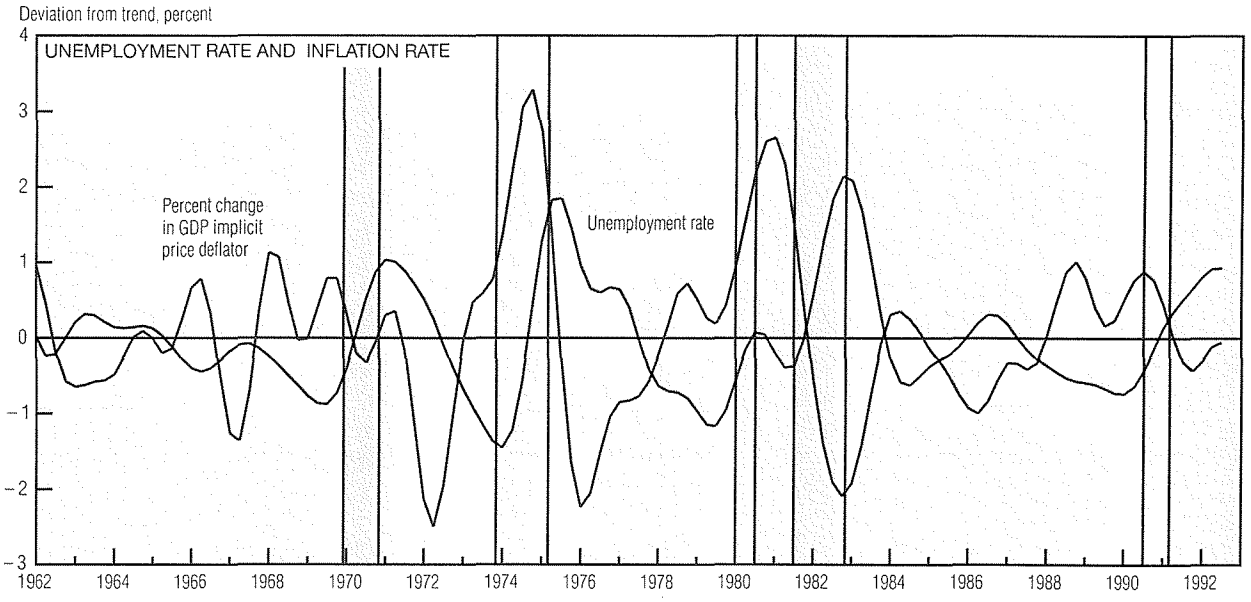

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SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and U.S. Department of Labor, Bureau of Labor Statistics.

which is highly correlated with the rate of inflation over the entire sample period. This suggests that investors quickly adjust their required rate of return to compensate for the effects of inflation.

Many analysts believe that short-term movements in real GDP and the unemployment rate contain information about the future course of inflation. However, the cyclical patterns in the data tend to be erratic, shedding some doubt on the validity of this hypothesis. During recessions, the cyclical component of real GDP always declines, while the cyclical component of the unemployment rate always rises. Indeed, these tend to be the defining characteristics of a recession. In contrast, the cyclical component of inflation has been observed to rise, fall, or even change direction during recessions. Thus, the data do not support the notion that there is a consistent trade-off between inflation and unemployment.

Empirical relationships in economics are often imprecise and subject to change. Nevertheless, broad regularities appear in economic data. A knowledge of the cyclical regularities among money, prices, interest rates, and output is necessary both for formulating and for understanding monetary policy.