

## The optimal inflation rate

“What is the Optimal Inflation Rate?” ask Roberto M. Billi and George A. Kahn in a recent article in the Federal Reserve Bank of Kansas City’s *Economic Review*. Billi and Kahn are certainly not the first people to ask this question, but they have made a rare attempt to answer it using quantitative analysis. Many central banks target specific rates of inflation; ideally, according to Billi and Kahn, the goal is to attain the level of inflation that maximizes the public’s economic well-being. Inflation can be harmful to the economy because it generally hurts creditors, discourages saving, and increases tax burdens. It can also distort prices because most companies change prices infrequently.

Nevertheless, there are reasons to keep inflation above zero. First, maintaining some inflation decreases the possibility of deflation, which is generally considered by policymakers to be a more serious problem than inflation because it increases the real value of the money owed by debtors. Second, low inflation leads to low interest rates. When nominal interest rates reach zero—a phenomenon known as hitting the zero lower bound—conventional monetary policy no longer works. These two reasons constitute policymakers’ primary rationale for targeting an inflation rate above zero. A third possible reason to aim for a positive inflation rate is that Billi and Kahn, among other economists, believe that most measures of inflation tend to overstate it.

Economists David Reifschneider and John C. Williams have found in econometric analyses that when zero percent inflation is targeted, the Federal funds rate is expected to reach the zero bound 14 percent of the time; when the inflation target is 4 percent, the funds rate is expected to hit zero less than 1 percent of the time. Billi has simulated

a New-Keynesian model in order to take the next step and estimate the optimal inflation rate. The model attempts to keep inflation as low as possible while still hitting the zero bound infrequently and remaining there for only a short period of time.

If his model is completely accurate and its underlying assumptions are correct, the optimal inflation rate is 0.7 percent per year. However, one must take “model uncertainty” into account, because greater uncertainty regarding the model leads to greater uncertainty about the economy’s response to shocks. Bearing in mind varying degrees of model certainty, Billi estimates an optimal inflation rate between 0.7 percent (no model uncertainty) and 1.4 percent (extreme model uncertainty). Under this policy, the Federal funds rate is expected to reach the zero bound between 3.5 percent and 7.5 percent of the time and stay there for about two consecutive quarters.

## Surging oil prices

As nearly everyone knows, crude oil prices have risen rapidly in the last few years. Early in 2008, they rose to record levels—considerably more than \$100 per barrel. Even after adjusting for inflation, the price of a barrel of oil recently surpassed its peak, reached in 1980. After more than two decades of relative stability, oil prices began to increase sharply in 2004, and they have continued their steep ascent ever since. According to the lead article in this issue of the *Review* (pp. 3–18), the Producer Price Index for crude petroleum increased 51.7 percent in 2007. Although sharp increases in prices for many goods and services can be jarring to consumers, surges in oil prices are particularly disruptive. Rising oil prices have a direct effect on prices for finished energy goods

such as gasoline, home heating oil, diesel fuel, and residential electric power. What are the factors leading to the sharp increase in oil prices? Stephen P.A. Brown, Raghav Virmani, and Richard Alm examine this question in “Crude Awakening: Behind the Surge in Oil Prices” (*Economic Letter*, Federal Reserve Bank of Dallas, May 2008).

Brown and his coauthors argue that much of the recent increase in crude oil prices can be attributed to “the fundamentals of supply and demand.” In turn, they examine each of the following factors: increased global demand for oil, the role played by expectations about future oil prices, the weakness of the dollar relative to other world currencies, and concerns about supply disruptions due to political instability in the regions where much of the world’s oil supply is located. As the authors observe, modern industrial economies are heavily dependent upon oil. As per capita income rises, economies consume more energy—for transportation, for heating and cooling, and for goods and services production—and global demand increases. In addition, demand for oil is relatively inelastic in the short term; it does not react quickly to changing prices. Thus, even small changes in the supply of oil can have a strong effect on prices.

The authors predict that the same factors will continue to play the predominant role in the determination of oil prices in the future. On the one hand, if oil production has reached a plateau—or even its peak—prices are likely to increase further. They are likely to remain high if what the authors call “oil nationalism” continues to slow the development of new oil resources. On the other hand, if the oil-producing nations shift their recent strategy and increase their output, oil prices are likely to fall. Prices are also likely to fall if new oil resources are explored and developed aggressively.