



JEFFREY M. LACKER

### Message from the President

Over the three years leading up to 2006, real growth in the U.S. economy was relatively rapid, and inflation remained relatively low and stable. Over the course of 2006, though, both those numbers deteriorated a bit. Growth dropped below 3 percent, and in fact was closer to 2 percent in the last half of the year. Meanwhile, inflation moved above 2.5 percent. While still relatively low by historical standards, I view that number—and, more importantly, the upward trend in inflation—with some caution. Inflation is, in my opinion, too high.

The pairing of softness in real economic growth with rising inflation creates a potential dilemma for policymakers, since these two phenomena are typically understood as requiring opposite policy responses—lowering the short-term interest rate in response to slower real growth while raising rates when inflation is too high. This dilemma points to the fundamental question facing the Federal Reserve—what is the relationship between growth and inflation? This question has been at the core of macroeconomics for the past 50 years. Can you “buy” greater growth by tolerating a little more inflation, and do you have to depress growth to lower inflation? Or is that one-to-one trade-off too simple? Instead, for instance, can we have both healthy growth and low, stable inflation? Prevailing thinking—both within the Federal Reserve and the economics profession in general—has changed much during that time. This year’s Annual Report essay outlines the evolution of that thinking, discusses where we stand now, and considers the implications for policymakers.

**“This dilemma points to the fundamental question facing the Federal Reserve—what is the relationship between growth and inflation?”**

In 1957, A. W. Phillips looked at data on unemployment and wage inflation in the United Kingdom, and found that as unemployment went down, wage inflation tended to go up. This statistical relationship became known as the “Phillips curve.” In the decades since Phillips published his findings, economists’ understanding of this relationship has developed along two fronts—refinement of the statistical facts concerning the relationship, and the application of theory to explain that relationship and draw out its policy implications.

The history of the Phillips curve has three distinct phases: the Phillips curve as a stable menu of policy options; the Phillips curve as a short-run relationship that depends crucially on people’s expectations; and the Phillips curve as one piece of a larger model that describes the complicated interactions of the decisions made by diverse participants in the economy. While this last phase may sound impractically complex, we believe it offers a clear understanding of macroeconomic behavior and a useful way to frame current policy debates.

In the first phase, Paul Samuelson and Robert Solow showed that Phillips’ empirical finding held also for U.S. data on unemployment and price inflation. And they argued that this statistical relationship implied a set of choices for society. If you wanted faster economic growth, then you should put more money into the economy. This could be done either through fiscal policy (say, by cutting taxes or increasing government spending) or through monetary policy (say, by cutting interest rates). This would produce higher inflation, but that was a trade-off sometimes worth making. Conversely, if you felt inflation was getting too high, then you should take money out of the economy. This version of the Phillips curve was appealing to many policymakers because it implied a simple, almost mechanistic, approach to the macroeconomy, one where desired results could be achieved through straightforward measures.

Beginning in the late 1960s, and led initially by Milton Friedman and Edmund Phelps, economists came to recognize the importance of people’s expectations for the relationship between inflation and such real economic indicators as unemployment. Inflation that was anticipated would not stimulate real economic growth, nor would disinflation that was anticipated slow it. Over the long run, they argued, economic growth

was determined by fundamentals, such as productivity and population growth. The appearance of a correlation between inflation and unemployment in the data was the result of episodes in which unanticipated changes in inflation had temporary real effects.

This theory gained credence in the 1970s, as the U.S. economy experienced both slow economic growth and rising inflation. The original Phillips curve seemed to be breaking down and the menu of options that policymakers supposedly had at their disposal no longer seemed useful. At the same time, Robert Lucas, Edward C. Prescott, and Finn Kydland extended the work of Friedman and Phelps and focused on the forward-looking nature of people's expectations. This "rational expectations" approach to the Phillips curve suggested that the public understands when policymakers might be tempted to try to exploit the seeming relationship between inflation and unemployment, and change their expectations even before a policy action has been taken. As a result, an attempt to bring down unemployment by letting inflation increase will not work—prices will rise but growth will not.

Modern work builds on this approach by studying economies in which realistic imperfections in markets create a short-run relationship between inflation and real variables similar to what we observe in the data. These models have the important implication that the relationship between inflation and real activity is not *causal*. Both inflation and unemployment are the outcomes of the behavior of markets for goods and for labor. In turn, the behavior of markets is the product of decisions made by an array of households, firms, and policymakers. If people are forward looking, their expectations about the future conduct of policy will play the dominant role in how inflation and unemployment interact. This means that unless policymakers

can influence expectations, they will have only limited ability to fine-tune the economy, even temporarily, and that maintaining economic stability hinges largely on people's confidence in future policy actions.

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In the late 1970s and early 1980s, the Federal Reserve under Paul Volcker began a long and often difficult campaign to regain the credibility it had lost during the previous decade. Alan Greenspan continued that fight, and by the 1990s, the Fed arguably had established such credibility. Happily, the economy responded well: we witnessed strong economic growth without a concomitant rise in inflation.

In light of the modern understanding of the Phillips curve, the real lesson of the Volcker-Greenspan disinflation is that the best contribution the Fed can make to economic growth is to keep inflation low and stable. And the key to low inflation is the stability of people's expectations about the future conduct of monetary policy. Monetary policy works best when it allows the real economy to respond appropriately to economic fundamentals, rather than attempts to insulate the economy from shocks by tolerating swings in inflation. This is the lesson of the modern Phillips curve and of our macroeconomic history over the last half century.



**Jeffrey M. Lacker**

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