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ast spring, policymakers at the Fed were criticized for moving preemptively against inflation. This criticism is somewhat surprising given the recent track record of the U.S. economy. In the past year, our economy has grown about as fast as it has grown in any four-quarter period since 1984. Jobs have been plentiful, and job growth on a nonfarm payroll basis has been well above long-run trends in labor force growth. Meanwhile, unemployment has fallen to a low level, and inflation has remained relatively low and stable.

By the standards of postwar U.S. economic history, one could hardly ask for better performance. And yet, in the middle of this success, we hear calls for a return to the failed monetary policy prescriptions of the past. Many are asking the Fed to reconsider its successful tack. They want to replace it with the stop-andgo approach of the 1960s and 1970s, policies that proved very costly for this country in terms of lost jobs and lower living standards.

In this article, I want to address some of this criticism and set the record straight regarding what we have learned about monetary policymaking in recent times. First, I want to stress that economic growth does not cause inflation. A country can grow rapidly because of real factors without any consequences for inflation. My second point, which is closely related, is that the Fed is not against jobs and growth; on the contrary, it is following policies intended to allow the maximum sustainable levels of real activity and employment. And, finally, I want to discuss ways that we can work to keep inflation low by maintaining a credible monetary policy. By a credible policy, I mean that the Fed sets and announces clearly defined goals, and it takes action, when necessary, to achieve those goals.

ECONOMIC GROWTH DOES NOT CAUSE INFLATION

Let me start with a simple idea: Economic growth does not cause inflation. If all we know about a particular economy is that it is growing rapidly, we really do not know anything about its rate of inflation. The main determinants of economic growth are real factors like the growth rate of productivity or the growth rate of the labor force. In times of rapid technological change, for instance, we tend to see productivity improvements that allow greater output per worker. This can lead to rapid growth in real output in an economy regardless of the inflation rate. In the late 19th century, for example, the United States was rapidly industrializing and, indeed, was on the road to world power status. Yet the average rate of inflation during that time was negative—actually a slight deflation. If growth caused inflation, we would have observed sharply rising prices during this era. Instead, relatively rapid economic growth was associated with deflation because money growth was constrained by the gold standard.

Of course the 19th century is far in the past, but the idea that growth does not cause inflation is borne out in modern economies as well. Around the world, since World War II, high-inflation countries have grown no faster than lowinflation countries. If anything, they have grown more slowly, on average. And even a slightly slower average rate of economic growth can have a large effect on living standards. Suppose, for example, that for every 3 percentage points of additional inflation, the average growth rate of the economy declines by 0.075 percentage points, a rule of thumb consistent with recent empirical estimates. Let's imagine two economies, one with zero inflation, growing at 3 percent per year, and an identical second economy with 3 percent inflation, which, by our rule of thumb, grows at only 2.925 percent per year because of the higher inflation. It doesn't sound like these economies are very different. But if we follow them for 30 years, we find that living standards in the economy with higher inflation have been eroded by more than 2 percent. Is this a large number? I think it is. In terms of national income in the U.S. economy today, it would be about \$170 billion, or just under \$1,250 for every worker currently in the civilian labor force.

That growth does not cause inflation has been widely recognized in economics since the 18th century economist and philosopher David Hume wrote his famous tract, *Of Money*, more than 200 years ago. Hume's reasoning was fairly straightforward. All of economic theory is based on relative prices: People trade off apples against oranges and computers against cars. Their decisions are based on the nature of these tradeoffs. Prices are expressed in the relative form, "How much chicken do I have to give up to obtain a steak?"

In fact, the idea of inflation, a general rise in the level of prices, does not even enter into the standard theory until money is considered. Why? Because all relative prices cannot increase at the same time. It is only the introduction of money, a common medium of transactions, that creates the possibility of inflation. If, for convenience, all prices are expressed in terms of a paper currency, as they are today, then all the money prices of goods and services can rise at once if the amount of currency in circulation is expanded rapidly enough. Thus, monetary systems can produce inflation. This is the basis for the assertion that inflation is a monetary phenomenon. The logic,

reexamined repeatedly by generations of economists, is ironclad, in my view.

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But ironclad logic does not always translate into simple policy prescriptions. The exact connections between money growth and inflation can be hard to trace. There are numerous problems in measuring what we mean by money, and for that matter what we mean by inflation. In part because of these measurement problems, we do not fully understand how short-term monetary growth rates get translated into short-term price movements. For longer-run price movements, however, the evidence across countries is clear: Persistently high rates of money growth, however defined, translate into persistently high rates of inflation. This longer-run evidence is comforting, in that it helps validate the monetary theory of inflation, but it is not very helpful to those who must decide what monetary policy actions should be taken this month or the next. Still, problems in identifying exact connections between money growth and inflation over relatively short periods of time should not cause us to neglect the fundamentals of inflation.

It follows from my discussion that any effects of the real economy on inflation must be temporary. But temporary inflation is by its very definition of less concern to monetary policymakers; if it is temporary, it requires no policy action because it will dissipate of its own accord. It is *monetary* inflation that policymakers must worry about, because monetary inflation is caused by the central bank and can be eliminated only by the central bank.

Certainly many countries around the world have had serious problems with monetary inflation, quite independent of anything occurring on the real side of their economies. Some countries in Latin America have had average inflation rates in the postwar era well in excess of 50 percent per year; many countries in Europe and elsewhere have struggled with double-digit inflation for years.¹ These persistent inflation rates are no accident. They are a matter of a fairly simple policy choice by the central banks of these countries—the

Relatively short bursts of very high inflation are almost uniformly associated with poor economic performance. See Bruno and Easterly (1996). choice to tolerate a high inflation rate. In contrast to these countries, we in the United States are lucky: We have had inflation of around 3 percent for nearly the whole of the current expansion. But this 3 percent is an entrenched, monetarily-induced inflation which is not going to go away unless the Fed takes specific action to eliminate it.

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THE FED IS NOT " AGAINST JOBS AND GROWTH"

Of course, taking action to move the monetary inflation rate lower is controversial. Many are concerned that we will restrain the economy from its full growth potential if we move to a lower inflation rate. Indeed, a surprise attack on inflation—a "slam-on-the-brakes" disinflation policy-might well have such an effect. But an organized, well-publicized, and fully expected policy move toward a stable price environment should pose no danger to the real economy. Such a change would allow markets, consumers, and businesses sufficient time to plan for the new environment. In fact, planning ahead and announcing intentions allows markets to act in ways that *reinforce* the announced plans. For instance, a credible policy announcement today that we plan to lower inflation by a certain amount over a certain time period might enter into tomorrow's labor negotiations or government budgetary planning, allowing those processes themselves to help bring about the lower inflation. Most macroeconomists agree with this position: It is the unanticipated or surprise component of a change in policy that causes economic turmoil, not the deliberate, wellpublicized effort I have in mind.

Far from being against jobs and growth, the Fed's inflation-fighting policy maximizes our living standards over the long run. That is why I am suggesting that the Fed should do its utmost to provide a stable price backdrop for the economy, allowing the price system to work as efficiently as possible. After all, we want the prices in the economy to reflect fundamental economic value. This allows people and businesses to assess economic opportunities more accurately and make the best economic decisions. There is no reason to confound the purpose of the price system by introducing inflation. Otherwise, price changes in goods and services always have to be examined from two sides: "How much of the price change is due to inflation, and how much is a real signal about a change in economic value?" Inflation merely complicates the signals sent by the price system.

Taking the risk of higher inflation is not just a matter of confusing price signals. Higher inflation also interacts with our nominally based tax system, especially with taxes on capital, to create large distortions. And higher inflation causes people and businesses to waste resources in trying to economize on their money holdings. A good deal of research suggests that these costs are substantial. To make matters worse, the risk of higher inflation creates uncertainty, which also exacts costs, including an inflation risk premium in interest rates.

A simple decomposition of interest rates on government securities will help illustrate the problem. The return on a government debt instrument of a given maturity can be thought of as having three components: First, there is a real component, which compensates lenders for the use of their money. Second, there is an expected inflation component, which compensates lenders for the loss of purchasing power of their money over the time period involved. And, finally, there is an inflation risk premium, which compensates lenders for taking the risk that inflation might be higher than they expected at the time of purchase.

Attempting to estimate the size of these three components requires sophisticated econometric analysis and, even in the best of circumstances, it involves substantial imprecision. But it is useful to consider two periods during the postwar era in the United States when inflation was comparatively low and stable. The first period extended from 1960 through 1965. During these years, inflation was between $1^{1/2}$ and 2 percent, and the 10-year

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Treasury note was trading to yield around 4 percent. Most analysts think monetary policy had considerable credibility at that time, so inflation risk was not a large factor in interest rates. To the extent investors expected inflation to continue at $1^{1/2}$ to 2 percent per year, the notes were priced for a real yield of 2 to $2^{1/2}$ percent.

Now contrast this with the years 1991 through the present. Inflation has been near 3 percent during this period, and according to surveys, investors expect it to stay at about that level. But the 10-year Treasury note has traded in a range between 6 and 8 percent. If the notes are priced to yield a real return of 2 to $2^{1/2}$ percent, the inflation risk premium may be anywhere from $^{1/2}$ to $2^{1/2}$ percentage points.² This is substantial, and I think it is well worth our time to consider ways to eliminate it.

A lower inflation risk premium is possible if we follow a disciplined policy to move inflation lower and keep it lower in a credible way. But, particularly against the backdrop of external pressure, it is not surprising that financial markets worry that the Fed will instead allow inflation to move higher, as it did in the 1970s—that we will allow the inflation genie out of the bottle, so to speak. And if that happens, it may be a difficult and painful process to get inflation back to where it is today.

CREDIBILITY: HOW TO KEEP INFLATION LOW

Our critics notwithstanding, I think most economists and policymakers agree with the assessment of inflation that I have given so far. Because there has been widespread consensus since the early 1980s that the U.S. inflation rate should not be allowed to accelerate, we have had a fairly successful run of policy. This is especially the case in the current six-year-old expansion, during which inflation has been extraordinarily low and stable. The Federal Reserve's monetary policy over the last 15 years is essentially a success story: We have made great strides against inflation since the early 1980s, mostly to wide acclaim. I think it is important to remember it hasn't always been this way.

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I am afraid the Fed, and many other central banks, got into a trap in the 1960s and 1970s. Beginning in the early '60s, the Fed sought to encourage a higher level of economic activity by keeping interest rates artificially low. For a time, output rose while inflation stayed low. The money supply, however, began to grow at an accelerating rate, and by 1965 inflation had begun to rise. In response, the Fed tapped on the brake, causing the money supply growth rate to drop sharply and the inflation rate to dip. But tight money increased interest rates and reduced the flow of credit. The Fed responded by releasing the brake and pushing down on the accelerator once more. As a result, the money supply expanded sharply and inflation accelerated. This stop-and-go cycle was repeated once again toward the end of the '60s and became a well-entrenched pattern in the '70s. The economy lurched from recession to recession, and each recession was followed by an expansion with a higher rate of inflation—and a higher rate of unemployment—than the previous one.

I suspect that many of you have painful memories of the late '70s and early '80s. It was a dark period for our economy. High inflation, 20 percent interest rates, and a steep recession bankrupted many farmers and business people and sowed the seeds of the S&L debacle. The experience surely showed the danger of letting inflation get out of hand. The policy failures of the 1970s sprang from the mistaken notion that monetary policy can be effectively used to manipulate growth in output. However, this view that monetary policy could "fine-tune" economic activity turned out to be a mirage. It can be argued that such fine-tuning made things worse. An erratic monetary policy —one that steps on the gas today only to brake tomorrow—is more likely to exacerbate fluctuations in real output than it is to reduce them.

The more successful policy involves watching inflation trends carefully and

² This uses the common assump-

acting pre-emptively to stave off incipient inflationary pressures. Many of the Fed's critics comment dryly that the Fed has been "excessively" concerned about inflation during the current expansion. But they're missing the point: The success of the FOMC's policy has been that the Fed has moved with enough agility to keep inflation at bay. Low and stable inflation is no accident; indeed, it is the result of good policy. One cannot analyze the inflation outcomes independently of the policy regime that produced those outcomes. In addition, low and stable inflation has turned out to be perfectly compatible with relatively strong growth in output and low unemployment. I am not saying this can go on forever—I am sure that the business cycle will continue to buffet our economy —but to those who argue that low inflation has been constraining growth or raising unemployment, I beg to differ.

The forward-looking aspect of Fed policymaking has been essential to the success in keeping inflation low during the past six years. The Fed's pre-emptive policy moves during the current expansion have marked an important departure from the backward-looking policies that got us in hot water in the past. Simply put, the FOMC must, over time, keep monetary expansion in line with real growth to maintain stable prices.

HARD LESSONS LEARNED

I have tried to emphasize some of the hard lessons we have learned about monetary policy over the postwar era: Inflation is not a road to prosperity; economic growth is ultimately determined by real factors outside the control of monetary policy; and backward-looking, stop-and-go policies cause economic pain without generating any offsetting economic gain.

I think many will agree with me that these have been important lessons. But perhaps in this era of good times, it is tempting to label the Fed as excessively worried about the reemergence of inflation. Some critics imagine that because inflation is relatively low and stable, it has no potential to rise again, even if we return to the policies of the past. In short, the temptation is to forget which policy regime has been successful in providing the backdrop for our relatively prosperous situation today.

In my view, these temptations represent dangerous thinking for U.S. monetary policy. Critics who suggest that the Fed is "against jobs and growth" are not helping to make better monetary policy or improve U.S. economic performance. A nation cannot inflate its way to prosperity. Creating nominal assets—in effect, printing more money—does nothing to improve living standards or create jobs, and in fact simply feeds inflation, which must then be undone at a later date. I recommend that we stick with the policies that helped bring us to the current point of prosperity. The Fed needs to make careful inflation forecasts and act pre-emptively when necessary to head off inflationary pressures. The benefits of a forward-looking, anti-inflation policy are clear, and such policies will contribute to continued economic success. Indeed, a stable price backdrop is the best contribution monetary policy can make to the U.S. economy.

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