

Macroeconomics: an Introduction

Chapter 9 *Monetary Policy*

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Preview

The past several chapters set the stage for our discussion in this chapter of monetary policy. In Chapter 6 we saw how the Federal Reserve System was established in 1913 in the hope that a central bank would stabilize the banking system and the economy. We also learned that the 'Fed' has three policy instruments it can employ to affect the supply of money to the economy via the banking system. In Chapter 7 we learned how the demand for money by the public comes together with the supply of money set by the Fed to determine the interest facing lenders and borrowers. The in Chapter 8 we saw how a change in interest rates affects the 'real' economy by encouraging capital investment, or discouraging it, and how those effects work through to actual production, employment, and finally the general price level and inflation.

Now we want to look at how the Fed has used its policy instruments, what its objectives have been, and whether it has been successful in attaining them.

9.1 The Evolution of U.S. Monetary Policy

Today, monetary policy is seen to play a key role in the health of the US economy, having a direct impact on interest rates, employment, and inflation. The media give prominent coverage to the statements and speeches by Federal Reserve officials because everyone knows that the Fed can send interest rates tumbling or zooming as it attempts to keep the economy on the path to non-inflationary growth. Wall Street reacts almost daily to any sign that worsening inflation might cause the Fed to tighten, or that a weaker economy might convince the Fed to ease. This acknowledgment of the importance of monetary policy is relatively recent and arose largely from the failures of monetary policy rather than its successes.

From the end of World War II until the 1970s, the role of the Fed was thought to be to keep interest rates low so as to foster the capital investment that is the engine of long term economic growth. Following the deflation that occurred during the Great Depression in the 1930s and the stringent price controls of World War II, inflation was not seen as a potential problem for the U.S. economy. The relatively low rate of inflation that did occur during those years was usually attributed to "cost-push," resulting from firms passing on higher wages won by powerful labor unions and from the supposedly monopolistic structure of important industries such as steel and autos. Occasionally it was necessary for the Fed to "take away the punch bowl," as one former Fed Chairman put it, when the economy showed signs of inflationary overheating. The field of macroeconomics was dominated by concerns that the economy might again stumble into a depression, and it was felt that government spending would be the most potent remedy if that happened. There was relatively little interest in the economics profession in monetary policy, indeed the prevailing sentiment was that "money doesn't matter."

Interest in monetary policy and a new appreciation of its power to cause both inflation and recession were reawakened in the second half of the 1960s as inflation rates crept up to levels that began to cause serious concern. When the Fed tightened monetary policy in 1966, there were two conflicting opinions among economists as to its probable effect. One said that it would have little impact on the economy, which would continue to expand in response to higher spending for the Vietnam War. The contrary view was that it would result in a dip in the economy and slower inflation. The "mini recession" of 1968 seemed to bolster the "money matters" camp in the profession, and monetary policy began to be seen as an important area of research and public debate.

How Inflation in the 1970s Changed the Fed's Policy Role

The debate over monetary policy intensified in the 1970s amidst waves of ever-worsening inflation interspersed by recessions and stagnating economic growth – a nasty combination the came to be know as **stagflation**. To what extent was monetary policy responsible for worsening inflation? Could it cure inflation? Could it cure stagflation?

The debate came to a head in 1979 when President Carter appointed Paul Volcker to the Chairmanship of the Fed with a clear mandate to bring inflation under control. By the end of the 1970s few economists seriously doubted that inept Fed policy was at least partly to blame for the stagflation that plagued the economy, or that a cure for inflation had to involve fundamental change in Fed policy. As President of the Federal Reserve Bank of New York, Volcker had seen monetary policy in action and was convinced of the need for a fundamental change in strategy. When he took the reigns at the Board of Governors of the Federal Reserve as Chairman he was resolved to wage war on inflation. As we have seen in Chapters 4 and 5, inflation fell sharply in the early 1980s, in fact much more quickly than most economists had expected. By the time that Volcker turned the reigns of the Fed over to Alan Greenspan in 1987 the war was won and the primary role of Fed policy had changed to one of insuring that inflation remained low. By the early 1990s it even became possible to talk of "price stability," or zero inflation, as being within reach.

How did Volcker do it? A physically imposing man with a commanding presence, Volcker had the ability to make people believe that he meant what he said. He had built a reputation for toughness as President of the Federal Reserve Bank of New York and enjoyed considerable credibility with Wall Street. Personal credibility was important because the Fed itself no longer had institutional credibility, having repeatedly failed to live up to its promise to contain inflation in the preceding decade. Volcker quickly signaled a new policy stance by announcing that the Fed would henceforth contain money growth, whatever the consequences. That meant it would no longer focus on keeping interest rates low, instead it would push interest rates to whatever level was necessary to restrain money growth – the ultimate cause of any inflation. Interest rates quickly soared to unheard of double digit levels. Credibility was finally restored, but only at the cost of the worst recession – the double dip recession of 1980-82 – since the Great Depression, but inflation fever was broken!

When Alan Greenspan succeeded Volcker at the helm of the Fed in 1987, he inherited a much healthier macro economy. Over the following 19 years – an astonishingly long tenure for the Chair of the Fed - he carefully fostered its hard-won credibility and the Chairman himself has acquired the aura of seer and wizard – virtual infallibility. The Greenspan era become recognized as ***The Great Moderation***, a period of low inflation, low interest rates, and stable economic growth. The 1990s were

the first example of a decade of falling inflation and rising prosperity, uninterrupted by recession from 1990 to 2001. Greenspan's appearances before Congress took on the character of a love-fest, with Senators and Congressmen competing to make the most obsequious compliments to the great man, a "national treasure" in the words of one.

With the war on inflation won, the Greenspan era saw a shift in focus towards the Fed using monetary policy to fight recession. Under his leadership the Fed became very aggressive in responding to events that threatened the continued prosperity. Shortly after he became Chairman he was confronted by the stock market crash of October 1987, an event that was shocking at the time but proved very transitory - in part because the Fed quickly moved to supply liquidity to the banking system and keep credit available until confidence returned. Evidently it worked, the stock market rebounded quickly and the economy kept on humming.

The Paradox of Monetary Economics

Believing that a picture is worth a thousand words, and a whole lot easier to read, I call your attention to Figure 9.1. Here we see the evolution of U.S. monetary policy in the behavior of the two basic variables which make it work, money supply and the interest rate, represented here by the growth rate of M1 and the T bill yield from 1960 on. Over the short run they move in opposite directions, as we see in the chart. This is the ***liquidity effect*** that we learned about in Chapter 8; when liquidity becomes more plentiful - M1 rising - the cost of holding M1 - the interest rate - falls. And vice versa, when M1 grows more slowly, the interest rate rises. For example, the Fed reacted to fears of economic disruption following the attack on the World Trade Center on September 11, 2001, causing money supply to jump and interest rates to fall as we can see here.

Over longer time horizons though, long enough for inflation to catch up with money growth and for interest rates to adjust to inflation, money growth and inflation move together. In the pre-Volcker era, before 1979, the growth rate of M1 and the T bill yield both fluctuated around the rising trend that we see in Figure 9.1. Clearly, the Fed failed in its mandate to keep interest rates low, not by creating money too slowly but by creating it too fast! Here is the ***paradox of monetary economics*** in action; *excessively low interest rates now will only lead to much higher interest rates later!* That happens because low interest rates accompany rapid money growth, and if money continues to rise too rapidly, inflation and higher interest rates eventually follow! It was on this shoal that pre-Volcker monetary policy foundered.

The two striking features seen in Figure 9.1 for the period following Volcker are the downward trend of both variables and the wild fluctuations in M1 growth over shorter periods. The declining trend again confirms what we have learned about the dynamic interaction of money supply growth, inflation, and interest rates in this chapter: money growth

and interest rates are negatively related over short periods, but positively related over long periods. It follows that to win a war against inflation the Fed is obliged to slow money growth by raising interest rates. Only then will a slower economy bring down inflation and ultimately allow interest rates to fall. So the paradox of economics implies that *to achieve the lower interest rates that people wanted in the 1970s requires first raising interest rates, to bring down inflation!*

Exercises 9.1 (new 1/10)

A. Former Fed Chairman Paul Volcker has surfaced again recently in the economic news. What role is he playing in monetary policy now, and what has been his primary contribution?

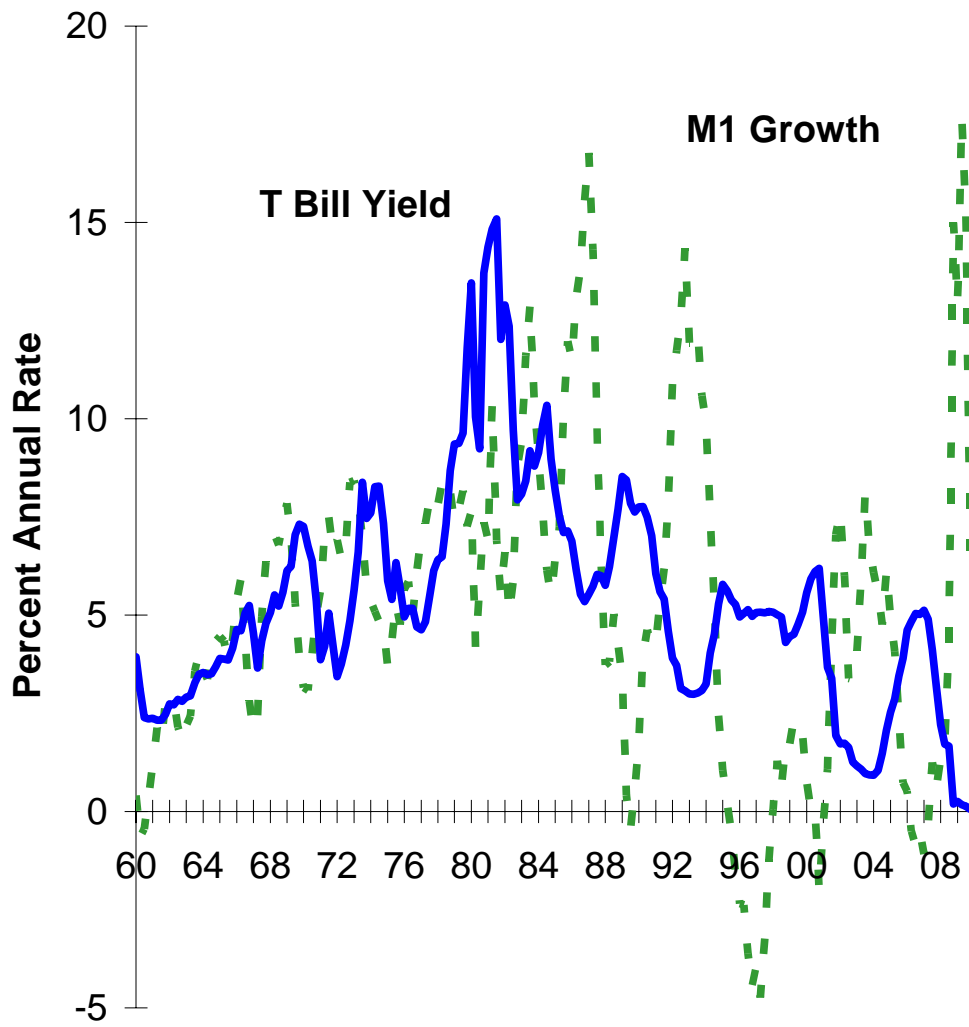
B. What accomplishments were attributed to former Fed Chairman Alan Greenspan that earned him the accolade of ‘national treasure’?

C. If the Fed holds interest rates too low too long, what is likely to be the eventual result? Why is it called a paradox?

D. Based on Figure 9.1, how would you describe the Fed’s response to 9-11? Why do you think it responded as it did to that situation?

E. Some economists recommend a steady rate of growth in the supply of money and a very cautious monetary policy response to economic shocks, allowing the economy time to right itself. Would that be an adequate description of monetary policy under Alan Greenspan?

Figure 9.1: Money Growth and Interest Rates -
The Short Run and the Long Run.



9.2 Monetary Policy in Practice

The dramatic fluctuations in M1 growth after the mid-1980s that we see in Figure 9.1 reflect three factors. Changes in how we use money has weakened the relationship between the demand for money and the interest rate. It now it takes a larger change in M1 to produce a given change in the interest rate. Beginning in the 1980s banks were allowed to pay interest on demand deposits, reducing the opportunity cost of holding M1. Intuitively, people are more willing to hold an increased amount of M1 if the interest penalty is smaller. A second factor at work is that electronic transfer between bank and investment accounts has greatly increased the ability of the public to use substitutes for M1. That contributed to the zero growth of M1 in the late 1990s – we just don't need to hold as much of it. Thirdly, Greenspan's style of monetary policy called for aggressive use of the tools of monetary policy to address problems as he sees them develop – threats to either low inflation or to prosperity - before they get worse. That aggressive tone in Greenspan's style of monetary policy is evident in the wide swings in the interest rate seen in Figure 9.1. In this section we will discuss several issues that play a leading role in an on-going debate about how monetary policy should be conducted in practice.

Should the Fed Target Interest Rates or Money Growth?

As we have seen, monetary policy works through the Fed's control of bank reserves, money supply, and interest rates in that order. One of the debates over the conduct of monetary policy has been whether the policy target should be money supply itself, expressed as a target rate of growth for M1 or M2, or an interest rate, moving bank reserves however much it takes to achieve that target. What are the pros and cons of these two strategies?

We have discussed how Fed policy prior to 1979 was mainly aimed at keeping interest rates low in the belief that would foster economic growth, but instead it fostered inflation growth. Money supply played almost no role in the Fed's thinking in those days, in fact for many years it did not even measure the money supply. When new Fed Chairman Volcker announced his anti-inflation monetary policy in 1979 the emphasis was to be on controlling the supply of money rather than on controlling interest rates. The Fed thereby acknowledged the critical role of money in the inflation process and that previous policy aimed at achieving low interest rates had failed. In the succeeding four years, the Fed did reduce the average growth rate of M1 and M2, and although their growth rates fluctuated at least the trend was no longer upward. Meanwhile, the Fed maintained that it did not have any specific target for interest rates, and that interest rates could fall only as the result of successful control of inflation over several years. Indeed, after reaching

record high levels in the early years of the new policy, interest rates did retreat to levels lower than any seen since the 1960s by the early 1990s.

After 1984 the Fed reduced its emphasis on targeting the growth rate of M1, believing that innovations in banking made the money demand function less reliable, returning instead to interest rate targets. Here is how interest rate targeting has worked.

The Board, and particularly its Chair, along with the district bank Presidents assess the outlook for the economy and decide whether interest rates are too high or too low to achieve the objectives of low inflation, low unemployment, and sustained real growth. The policy decision is made by the FOMC (Chapter 6) and expressed in terms of a target rate for “fed funds,” the interest rate banks charge each other in the inter-bank market for reserves. The media give the impression that the Fed sets the fed funds rate directly (“the Federal Reserve cut a key interest rate today...”) as it does the discount rate (the rate at which banks may borrow reserves from the Fed). That is not the case. The target fed funds rate is achieved by open market operations that increase or decrease bank reserves directly, thereby making reserves less or more costly, respectively. The resulting change in the fed funds rate then cascades through the financial system, affecting T bill and bond rates, corporate bonds, bank loan rates, and the stock market. What the change in bank reserves will be needed to achieve the fed funds target, and how much it will affect amount and growth rate M1 and M2, is not of direct concern. The NY Fed simply makes open market trades in whatever amount is required to achieve the FOMC’s interest rate target.

Why has the Fed shifted to an interest target and away from money supply? One big reason is that it has become so difficult to measure the demand for money because we no longer have sharply defined measures of money. As already mentioned, checking accounts now pay interest and so have become more like M2, which in turn becomes more difficult to distinguish from investments in an age of electronic transfer. Why insist on a certain rate of growth in M1 if people are reducing their holdings of cash due to the spread of ATM machines? On the other hand, we know what the interest rate is, it is a market price quoted in the newspaper. And the Fed has those 250 economists to help figure out what the “right” interest rate is in today’s economy. At least that is the idea.

A potential pitfall in the interest rate target approach to monetary policy is that you will repeat the mistakes of the 1970s, never raising interest rates quite enough to bring inflation under control. It is easy to do that because the Fed only affects the nominal interest rate, and an increase in the nominal interest rate will not dampen aggregate demand unless it is also an increase in the real interest rate. Successively higher nominal interest rates failed to curb aggregate demand in the 1970s because expected inflation was rising even faster, keeping the real interest rate low. Interest rate targets also make the Fed's job more difficult politically because high interest rates are always unpopular.

Rules vs. Discretion

Another long-standing debate about monetary policy has been between proponents of rules and proponents of discretion. A rule requires the central bank to abide by a formula that is announced to the public. One example is a money growth rule. If the world were as stable as our simple model in this chapter, then we could just set the growth rate of M1 at 3%, maybe a bit more, enough to foster sustainable real growth but not enough to ignite inflation. We could just program a computer to add bank reserves at a steady rate, send the Fed staff home. Discretion, in contrast, leaves policy up to the judgement of the FOMC that decides policy without articulating a rule. Which is a better system?

A money growth rule has long been advocated by the monetarist school of thought usually associated with the University of Chicago and Milton Friedman. The argument in favor of a money growth rule is basically that it is the only way of ensuring price stability over a long period, and goes as follows: History shows that the Fed is unable to "fine tune" the economy, having caused several recessions while failing to control inflation. Yes, it did a good job in the 1990s, but that is the exception to a pattern of failure in the past that includes the Great Depression. It is unrealistic to expect a group like the Fed to resist political pressures to compromise long term goals for short term gains, going instead for the kind of inflation speed-up we saw in the 1970s. This is an argument that has a lot of appeal.

The argument against the **monetarist** position is that an enlightened Fed can do better than blindly follow a fixed rule. For example, suppose that there is an increase in the demand for money due to heavy trading volume on Wall Street. Shouldn't the Fed accommodate such an increase in transactions demand by increasing M1 faster? If it doesn't, the Fed would be allowing an unnecessary shortage of transactions balances to occur which would push up interest rates and cause a slow down in the economy.

In addition, the economy is subject to real shocks, changes in productivity that alter the natural level of output. For example, suppose that the development of the Internet causes the natural growth rate of the economy to accelerate from 3% per year to 4%. Shouldn't the Fed accommodate this more rapid growth by increasing money growth by 1%? On the other hand, if world oil prices jump due to conflict in the Middle East, the resulting fall in our natural level of real GDP would seem to call for reduced money growth; otherwise inflation would accelerate.

Clearly, discretion has prevailed under Chairman Greenspan who has been aggressive in using the tools of monetary policy to guide the economy. With concerns about inflation on the rise in the late 1980s, Greenspan moved to put on the brakes. The resulting recession of 1990-91 convinced him to ease monetary policy sharply in 1992 so interest

rates plummeted and M1 growth zoomed. Renewed inflation concerns in 1993 brought another tightening of monetary policy in 1994 with rising interest rates and lower M1 growth into 1995. The Greenspan FED responded vigorously to the shock of 9/11, cutting interest rates sharply and allowing money growth to soar, at least temporarily. Was the performance of the economy been better as a result of activist monetary policy under 'Maestro' Greenspan than it would have under a policy rule? Can the Fed continue its good record with a less skilled driver than Greenspan at the wheel?

In the 2005 edition of this chapter I included the following paragraph:

“Perhaps the greatest challenge ahead for monetary policy is replacing Chairman Greenspan, who I assume to be mortal (though in his late 70s he is going very strong). A policy based on a person is not a good policy, and the success of monetary policy in the 1990s is very largely due to this man’s astonishingly prescient judgement. Under both Volcker and Greenspan it has been the Chairman of the Board of Governors who has called the shots, and no obvious successor sits on the Board today.”

The financial crisis following the transition from Greenspan to Bernanke supports my concern that the present system is too dependent on the personality in the Chair, and that transition will almost always trigger a crisis in credibility, until and if the new Chair is able to reestablish it. Indeed, many reputable macro economists feel that mistakes by the Greenspan FED set the stage for the financial crisis of 2008-09. According to this view, keeping interest rates too low for too long contributed to the ‘bubble’ in house prices and encouraged excessive speculation.

The Taylor Rule

The dependence of monetary policy on human judgment and the personal credibility of the Chair, and the increasingly fuzzy nature of money demand in today’s economy, motivates the search for monetary policy rules that are more responsive to economic conditions than is a fixed money growth rule and that target the interest rate instead of the quantity of money.

John Taylor, a professor at Stanford who chaired the President’s Council of Economic Advisors in the Bush administration and who more recently was Bernanke’s rival to be Chair of the Fed, proposed a simple rule in 1993 for monetary policy. The Taylor Rule is easy to understand, and the idea is this:

The focus is on finding the appropriate interest rate level (measured in practice by the Federal Funds rate discussed above) to achieve the Fed’s Dual Mandate of full employment, and low inflation. Taylor’s approach was to build up the answer in pieces, then put it all together.

Remember that the nominal interest rate consists of the inflation rate plus the real interest rate – Chapter 4! Following the idea of a steady state equilibrium discussed at the end of Chapter 8, we expect that a nominal interest rate such as the Fed Funds rate will on average be around an average real interest rate plus the current rate of inflation. Where do we get the real Fed Funds rate? By taking the average difference between the observed nominal rate and the rate of inflation measured by the CPI – and the result is about 2%. So if inflation is currently chugging along at a steady P% then Fed Funds (“FF”) can be expected to be found by:

$$FF \approx 2\% + P\%$$

This will hold only approximately at any one point in time, that is why we use the ‘approximately equal’ sign “≈”. So for example, in 2009 the inflation rate was about 2% and we could have considered $2\% + 2\% = 4\%$ as a normal or neutral FF rate.

$$FF \approx 2\% + 2\% = 4\%; \text{ in steady state } 2\% \text{ inflation.}$$

Now suppose that the Fed is not happy with the performance of the economy in 2009, and it certainly was not because unemployment was soaring. Taylor suggested deviating from the normal by an amount determined by the shortfall of actual real GDP from its potential, called the Gap, measured in percent of potential. Now if the economy was at potential just before the recession began, by 2009 it had fallen below potential by about 4%, leaving a gap of -4%. To counteract this decline the Fed would want to push the *real* Fed Funds rate down to stimulate capital investment, as we saw in Chapter 8. What to do? Taylor suggested taking .5 or half of the gap and adjusting the Fed Fund rate by that amount. In this example, the result would be

$$FF \approx 2\% + P\% + .5*(\text{Gap}) = 2\% + 2\% + .5*(-4\%) = 2\%$$

So far we have that in response to the recession the Fed should cut the Fed Funds rate from 4% to 2%. It would do this by stepping up their purchases of US Treasury securities in the open market, pushing prices up and yields down and injecting new reserves into the banking system. In fact they did this in 2008 and 2009 in massive amounts.

The Fed’s Dual Mandate also calls for control of inflation, so Taylor suggested another term in his rule to respond to a deviation of inflation from a target level considered acceptable. It seems that 2% is considered acceptable in recent times, partly because economists think that the CPI is upward biased. Now if inflation is above target what should the Fed do? It should push the interest up, not just the nominal rate but in real terms. So if inflation rises from the 2% we saw in 2009 to, say, 4% in

2012, the Fed must push the Fed Funds rate up enough to compensate for the additional 2% of inflation *and* something extra to push the real rate above its normal 2% level. Taylor suggested adding .5 times the difference between actual and target inflation. So imagine that the economy is back to full employment, following a recovery from recession, and the GDP Gap is zero, but now inflation is picking up steam and up to 4%, what does the rule tell us? The Taylor rule would be:

$$\begin{aligned} \text{FF} &\approx 2\% + P\% + .5*(\text{Gap}) + .5*(P\% - 2\%); \text{ full employment but inflation!} \\ &= 2\% + 4\% + .5*(0) + .5*(2\%) \\ &= 7\% \end{aligned}$$

Notice that the rule tells the Fed to raise the Fed Funds rate not just by the 2% of increased inflation but by more, by 3% to a new level of 7% in comparison to the 4% rate we started with.

***To control inflation the Fed needs to get ahead of it,
not just keep up with it!!***

Could a computer be programmed to implement the Taylor Rule, thereby having solved the problem of finding a successor to Alan Greenspan? Maybe, but probably not even John Taylor, had he succeeded Greenspan, been willing to relinquish all judgment in favor of a rule.

The credibility of the Taylor Rule is enhanced by the fact that it describes to some degree how central banks, including the Fed under Greenspan, actually behave. During the post-Volcker era they have indeed leaned against the inflation wind while also paying attention to the full employment level of output, and with some considerable success in Europe as well as in the U.S. But their behavior has at times departed quite far from the Taylor Rule. Indeed in 2002 the Greenspan monetary policy is much more aggressive in the direction of low interest rates to boost the economy than the Rule would dictate. In retrospect that may have been unwise; Greenspan's policy is being blamed in part for speculative excesses, financed by low rates, that lead to the crisis at the end of the decade.

One of the major problems in the implementation of Taylor-type rules is that our estimates of the gap are quite poor, because we do not have good estimates of the potential output of the economy. In practice, estimates are usually based on trend lines that assume a very smooth path for potential GDP, but much modern research suggests that the path of potential GDP is subject to frequent and largely unpredictable shocks. For example, if the world oil price rises unexpectedly, that almost surely depresses the potential or natural level of U.S. real GDP because our costs have risen. But by how much? On the positive side, how much has the Internet boosted our potential GDP? We are sure it

has, but we are very unsure of how much. If we shift from the output gap to using the unemployment rate as a measure of slack in the economy, we have the problem of measuring the natural rate of unemployment. We have seen how far off the estimates of that were in the 1990s.

What role Taylor-type rules will play in setting monetary policy in the future remains to be seen. Ben Bernanke rather than John Taylor succeeded Greenspan, and Bernanke does not follow the Taylor rule. In 2009 the actual Fed Funds rate was not the 2% or so recommended by the Rule but actually very close to zero. Why? Because in the judgment of the FOMC the financial crisis called for exceptional measures, outside the bounds of normal past experience. Was the Fed right? Should they have followed the Rule instead? Would John Taylor have followed his Rule when it seemed the world was fallen down around him?

What Monetary Policy Can and Cannot Do

Returning to our perspective on monetary policy over the past four decades, Figure 9.2 charts the growth rate of M1 along with two key real variables, the growth rate of real GDP and the unemployment rate. As we would expect, sharp drops in M1 growth are often followed by drops in real GDP growth and a rise in unemployment, while faster M1 growth is followed by a pick up in real GDP growth and lower unemployment. Equally important is the fact that there is evidently no correlation over longer periods between money growth on the one hand and these two real variables on the other. *Evidently, monetary policy can affect the real economy over short periods, but over longer periods the real economy returns to its normal state.*

If anything, the real growth rate of the economy was lower and unemployment higher during the years when money growth was at its most rapid. Some economists argue that high inflation rates damage the efficiency of the economy because they make the price system less meaningful to economic agents and because people expend real resources avoiding the costs that inflation imposes on holding money and through the taxation of nominal income.

Finally, in Figure 9.3 we see the growth rate of M1 along with the inflation rate as measured by both the GDP deflator and the CPI. While the effect of changes in M1 growth on real GDP was seen to be fairly quick in the previous figure, we see here that inflation responds to changes in money growth with a lag of about two years. It is easy to see why economists and the general public are again becoming concerned that rapid money growth may again lead to inflation. Indeed, the lesson of history is this: ***What monetary policy can do over the long run is ensure low inflation, but bad monetary policy will ensure high inflation and recurrent recessions.***

We have learned from experience that the aim of monetary policy should be growth in the money supply that is consistent with the long run growth rate of the economy and low inflation.

Figure 9.2: Rapid Money Growth Produces Only Temporary Gains In Real GDP and Employment

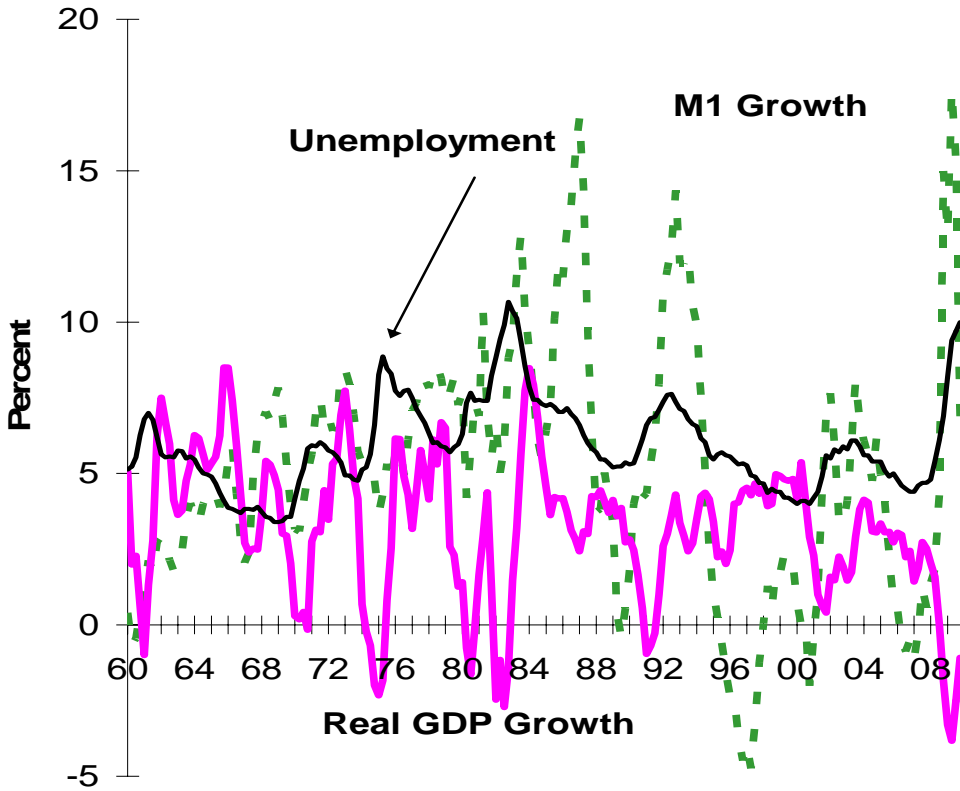
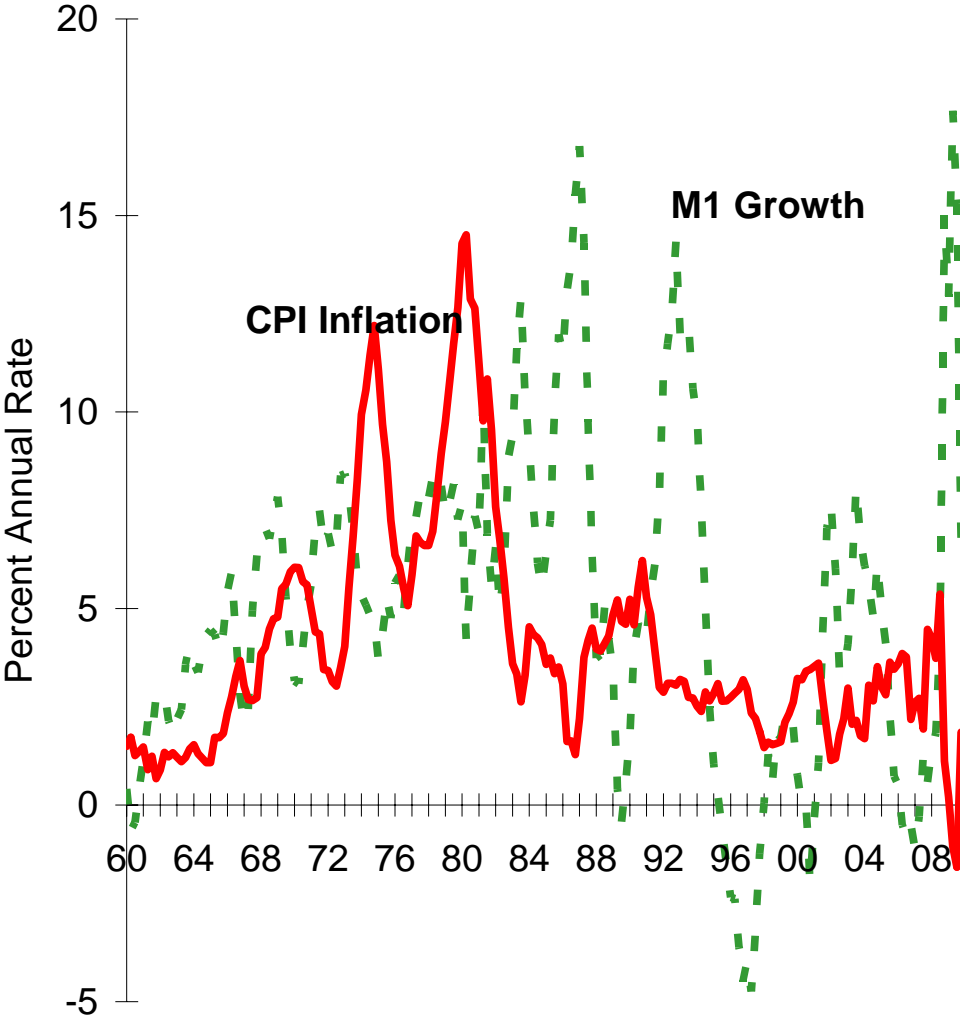


Figure 9.3: Inflation Reflects the Long Term Trend in Money Growth



Exercises 9.2

A. How long does it seem to take for acceleration in money growth to show up in the inflation rate? How does this lag in the response of inflation to money growth make the Fed's job more difficult?

B. Identify recent stories in the press about the Fed's monetary policy. Does the emphasis seem to be on fighting inflation or fighting unemployment? Is the Fed announcing a target for the growth rate of the money supply or a target for interest rates? What are the current targets? Has the Fed been meeting objectives for real GDP growth and inflation recently, and if not, in what way is it off track? How do political pressures seem to be affecting Fed policies?

C. Imagine that a new Chairperson of the Fed sets out to cut the interest rate on home mortgages from 9% to 6% - to make home ownership more affordable. What do you predict will be the outcome of a Fed policy that cuts interest rates immediately and seeks to keep them down? What would the Fed have to do now to achieve the long term goal of lower mortgage rates?

D. (Rev. 1/10) Assume that the inflation rate is currently 6% and the gap is estimated to be -4% (actual GDP below potential). The Fed would like to see inflation at 2%. What target level of the Fed Funds rate would the Taylor Rule recommend in this situation? Assuming that current inflation is assumed by the public to continue, what is the real rate of interest? Why does this answer make sense? Now imagine that inflation jumps suddenly to 8%, what is the change in the target fed funds rate? Why does this answer make sense?

E. What is the target rate for fed funds that the Taylor Rule gives today? What information do you need to answer this question? Having made the necessary assumptions, what number do you get and how does it compare with the actual fed funds rate? Why do you think the Fed is doing what it is doing instead of what the Rule says?

9.3 The "Phillips Curve" and How It Disappeared

In 1958 a New Zealand economist named A. W. Phillips pointed out that the unemployment rate and the rate of change in wages had been negatively correlated in the UK. During the next decade the idea that this represented a fixed trade-off between unemployment and inflation took hold in the economics profession and soon became known as the "Phillips curve." Phillips' observation was reinforced by the experience of the 1960s which started with unemployment high and inflation low and ended with unemployment low and inflation high.

The quarterly observations on these two variables are plotted in Figure 9.10 and indeed they trace out a neat curve. If this were a stable relationship it would imply that a country can have low unemployment or low inflation, but not both. Some economists jumped to the conclusion that a little inflation was good for economic growth. Indeed, third world countries were counseled to use inflation to stimulate rapid development. From the perspective of our present understanding of the dynamics of inflation and unemployment we would now say that there is only a temporary trade-off between unemployment and inflation during the transition from a lower inflation rate to a higher one.

A temporary trade-off of lower unemployment for higher inflation is indeed what we saw when we studied how the economy adjusts to a new steady state. Further, our study of the transition from a higher inflation rate to a lower one leads us to expect that the unemployment rate will rise before the inflation rate finally subsides. We see in Figure 9.11 that when the Fed moved to slow inflation at the end of the 1960s the result was rebounding unemployment associated with the recession of 1969-70. As the Fed struggled successively to reduce unemployment and then reduce inflation during the 1970s it created the rising spiral that we see in this chart. By 1980 the unemployment rate was no lower than it had been two decades earlier, but inflation was in double digits. The real economy had returned to its natural rate of employment, only inflation had changed.

Figure 9.4: The 'Phillips Curve' in the 1960s
A Cruel Choice Between
Inflation and Unemployment?

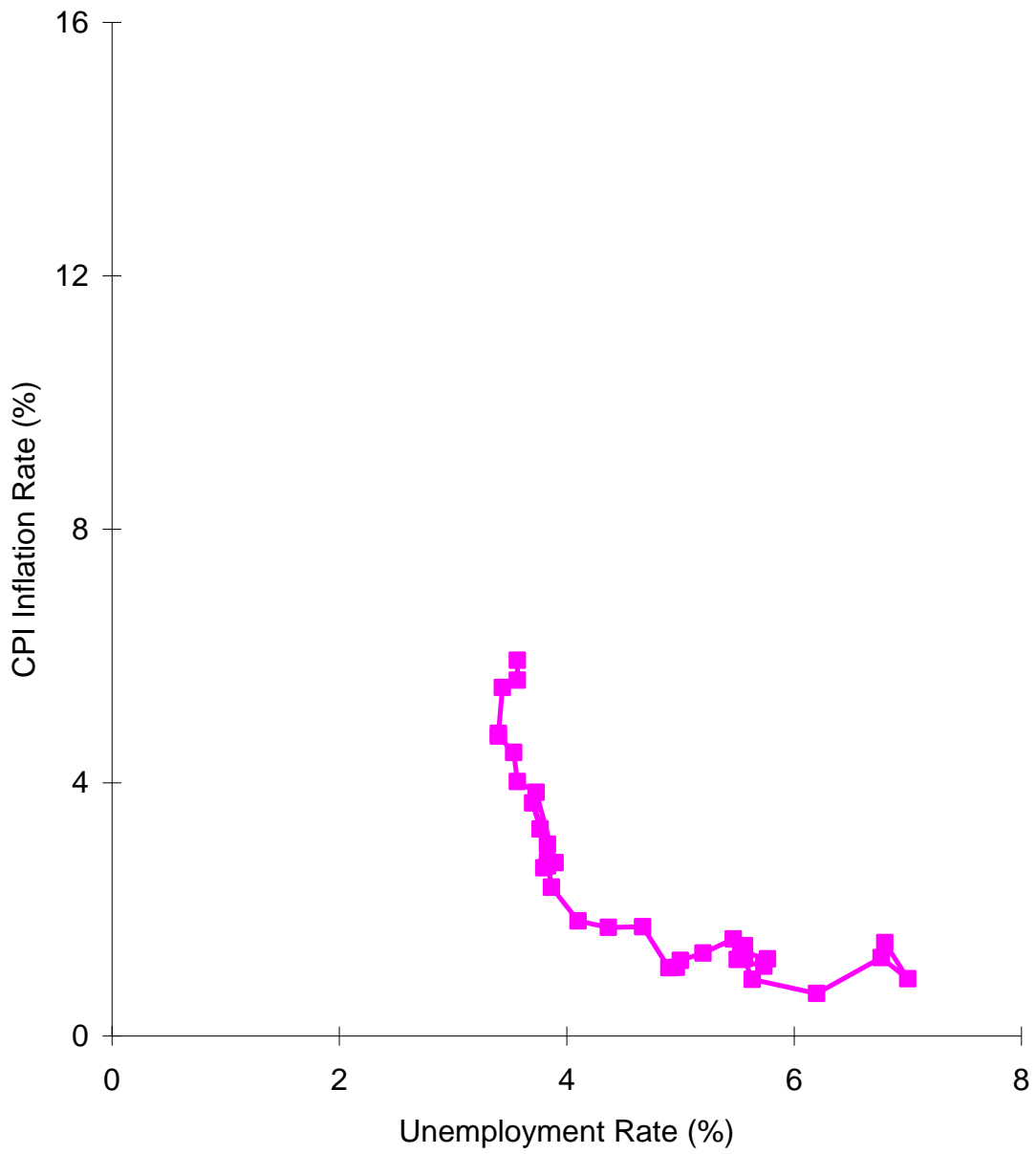
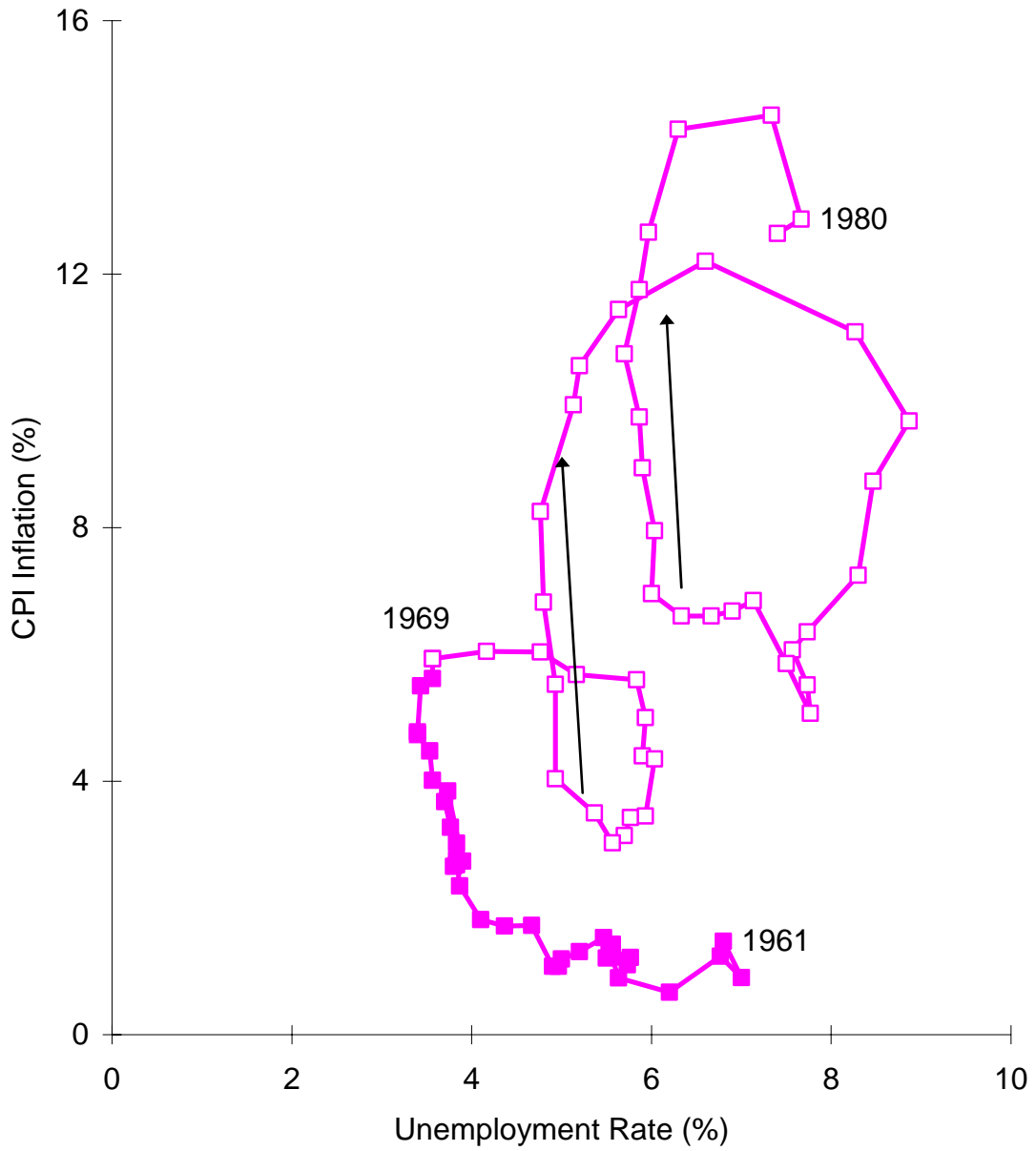


Figure 9.5: The Phillips Curve Becomes a Spiral as Inflation Escalates in the 1970s



When the Fed finally brought the inflation spiral under control in the 1980s we experienced the reversal seen in Figure 9.12. Unemployment surged during the 1980-82 double dip recession and then inflation subsided dramatically over the next few years. By 1987 the unemployment rate and the inflation rate were again almost exactly where they had started in 1961!

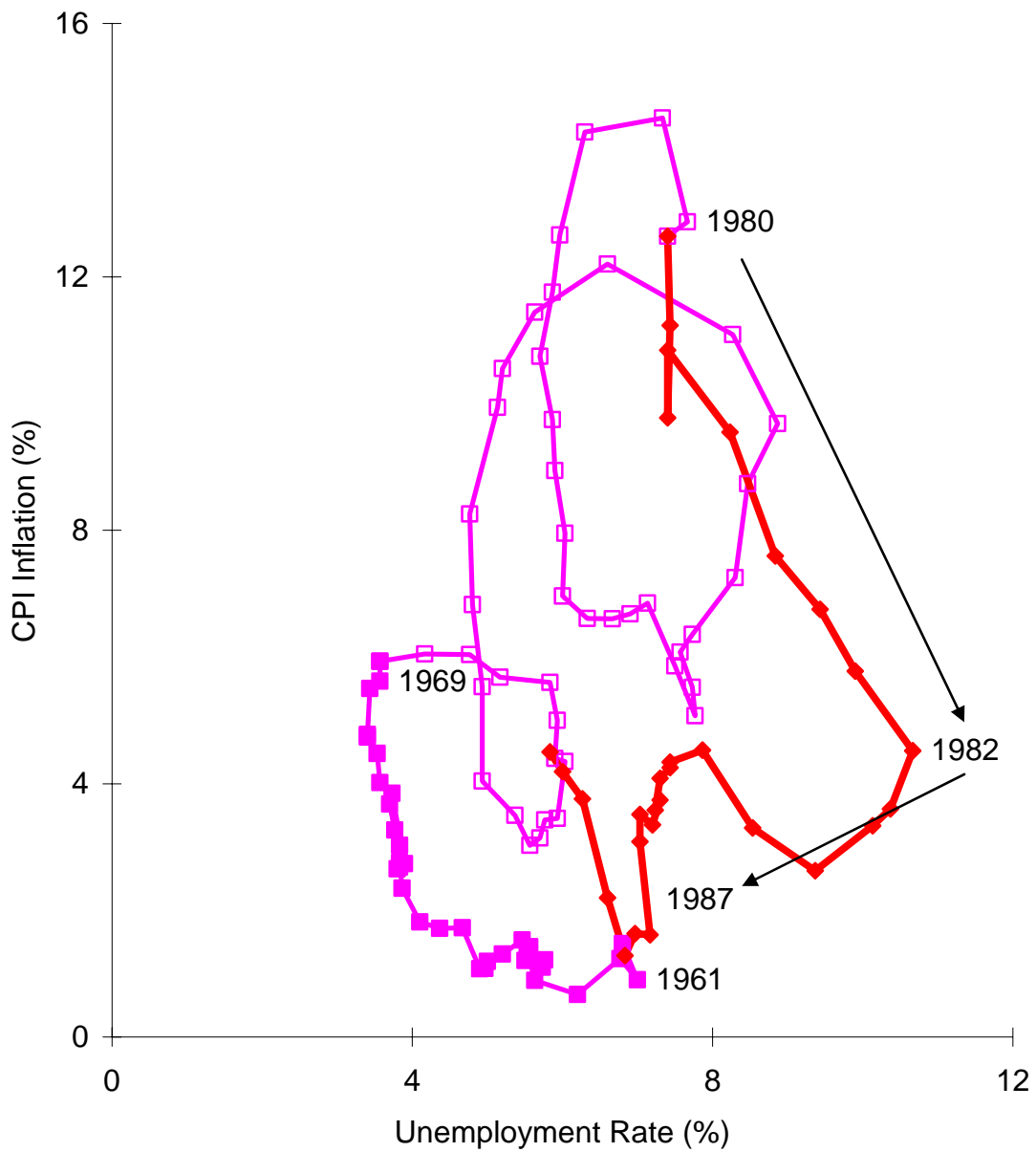
The lesson that economists learned from seeing the Phillips curve turn into a spiral was that monetary policy cannot by itself reduce the unemployment rate permanently, rather it can only reduce it temporarily at the cost of higher inflation and, ultimately, recession when the inflation is extinguished. Today most economists accept the idea of a natural rate of unemployment, which may not be an ideal rate but represents a tendency toward equilibrium in the economy. Better and more education, investment in technology, and expanded opportunities are the only sources of improvement in the standard of living over the long run.

Exercises 9.3

A. Judging from our experience with the Phillips "curve," what would be a reasonable estimate of the natural rate of unemployment in the U.S. economy?

B. Suppose that the Fed begins this year to increase the money supply at a rate of 10%. Sketch the path that the Phillips curve might take over the next several years.

Figure 9.6: The Phillips Curve Becomes a Circle
By 1987 the Economy Was Back Where It Started!



END