On Active and Passive Monetary Policies:

What Have We Learned from the Rational Expectations Debate?

*By Donald J. Mullineaux**

When you are confronted by any complex social system, be it an urban center or a hamster, with things about it that you're dissatisfied with and anxious to fix, you cannot just step in and set about fixing with much hope of helping . . . . You cannot meddle with one part of a complex system from the outside without the almost certain risk of setting off disastrous events that you hadn't counted on in other, remote parts. . . .

Intervening is a way of causing trouble.

Lewis Thomas, "On Meddling,"
in *The Medusa and the Snail* (New York: Viking Press, 1979).

Dr. Thomas is a biologist and we can forgive him if he is more concerned about meddling with hamsters than with other social systems of at least equal importance, such as the national economy. His fundamental point, that trying to improve matters often ends up making things worse, has long been a point of debate, however, among those who have studied government policies aimed at stabilizing the economy. Economists who side against meddling with the economy have typically done so for precisely the same reason that Dr. Thomas counsels hands-off policies—that we are just too ignorant of how systems like hamsters and economies work to be able to accomplish any good. This view holds out the promise, of course, that one day we may be smart enough to conduct economic policy without "causing trouble." Those who come down for meddling contend that our economic knowledge, though quite imperfect, is sufficient to allow the

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good effects to outweigh the bad.

A new and controversial school of thought about how the economy operates recently has shifted the focus of this long-running debate. This approach, known as the rational expectations theory, suggests that it may well be *impossible* to design policies to stabilize things like unemployment or production of goods and services, *regardless of how much we know about how the economy works.* As the label suggests, this new idea centers on the way people form expectations of economic events and argues that forecasts of, say, inflation will take account of all the factors that actually determine how fast prices rise. The strong conclusions concerning stabilization policies have led this view's adherents to argue that the Federal Reserve should abandon active efforts to influence the economy and adopt a passive stance of setting a constant growth path for the money supply and never deviating from it.

Given the importance of the issues, this rational expectations theory has been much scrutinized of late. A number of issues have been raised by critics in attempts to reestablish an activist role for monetary policy. These efforts focus on several different aspects of the new theory. While the debate is far from settled, enough may now be known to draw some *tentative* conclusions about the desirability of activist efforts to influence the national economy.

RATIONAL EXPECTATIONS: A CHALLENGE TO MONETARY ACTIVISM

Monetary policy activists contend that by appropriately adjusting the growth of the money supply, the Federal Reserve can offset disturbances to the economy and thereby reduce fluctuations in output and unemployment. As an example, suppose that businessmen become extremely pessimistic about the profit outlook and cut back on spending for new plant and equipment. The fall-off in business spending would be accompanied by an unplanned accumulation of inventories, and firms would respond by laying off workers and lowering production. Rising unemployment and declining levels of income would mean that households also would trim their spending, perhaps triggering an economic recession.

Such a scenario provides a cardinal opportunity in the eyes of policy activists. By accelerating growth in the money supply, the Fed can boost overall demand for goods and services. This happens because as more money is injected into the economy than people originally intended to hold, they will attempt to reduce their money holdings by purchasing more goods or financial assets. Purchasing more goods adds directly to demand, while buying more financial assets indirectly boosts demand by lowering interest rates in financial markets. With a sufficient dose of stimulus, policy activists contend, the Fed can offset the reduction in demand—and any other predictable disturbance—so that production and unemployment remain stable.

The rational expectations theorists are skeptical of this argument, however.[1] They do not deny that the increases (declines) in money growth will boost (reduce) total demand. But they question whether these policy-induced shifts in demand will have any influence on the behavior of *suppliers* of goods and services. If the production decisions of businesses are not somehow linked to policy changes, then output and unemployment will not be responsive to changes in money growth. Adherents of the rational expectations view claim that the existence of such a link requires that any shift in money growth be *unanticipated* by the public at large. But, they continue, because people form their expectations rationally, it is *im-*

[1]For a more complete discussion of the logic of rational expectations theory, see Donald J. Mullineaux, "Money Growth, Jobs, and Expectations: Does a Little Learning Ruin Everything?" *Business Review*, Federal Reserve Bank of Philadelphia, November/December 1976, pp. 3-10.

possible for the Fed continuously to engineer shifts in money growth that are unanticipated. Their conclusion: there can be no systematic link between Fed policy actions and firms' decisions about how much to produce.

Why do the rational expectations theorists claim that money growth shifts must be *unexpected* if they are to be related to output and unemployment? The answer is a little complex. Economic logic tells us that firms will produce more output when they sense higher demand for their goods *only* if they're convinced that there has been a *relative* demand shift—an increase in demand for their product relative to demand for all goods and services.[2] But higher money growth doesn't produce a relative demand shift; rather, it increases the demand for all goods and services—*aggregate* demand. Therefore, firms will produce more output on the heels of higher money growth only if they *fail to recognize* that aggregate demand is higher and mistakenly conclude that there has been an increase in the relative demand for their goods. Rational expectations theorists claim that business will suffer this kind of misjudgment precisely when an increase in money growth comes unexpectedly. Having no information on the *source* of the increased demand, firms treat it as a relative shift.

When a shift in money growth is *anticipated,* however, then firms are aware that demand for their product is up simply because aggregate demand is higher. Recognizing that the cost of labor and raw materials will be rising at roughly the same pace as their output price, they make no attempt to increase production. The sole result, then, of an *anticipated* increase in money growth is a higher inflation rate, or so the rational expectations school contends.

If only shifts in unexpected money growth have effects on output and unemployment, why not have the Fed engineer whatever amount is necessary to achieve an unemployment rate target? The rational expectations answer: it can't be done. If people recognize that the Fed increases money growth every time unemployment rises, they will use this information in making forecasts. Thus the Fed's response will come in the form of higher *anticipated* money growth, which brings *only higher inflation.* Any systematic policy response by the Fed will eventually be learned by the public and built into its forecast. Unless the Fed has better information than the public, there is no way the central bank systematically can surprise people so as to achieve a lower unemployment rate. Once the Fed has reduced money growth to levels consistent with a low rate of inflation, the best monetary policy is one that sets a constant growth target for money and sticks to it, regardless of the state of the economy. This passive stance would prevent monetary policy from being a source of instability, or so rational expectations adherents claim.

Though a number of economists seem sympathetic to the rational expectations view, others have raised questions about the logic of the argument. In each case, the points made, if valid, are sufficient to restore at least the feasibility of activist monetary policies aimed at influencing unemployment and output.

ACTIVISM REHABILITATED?

Attempts to restore the credibility of activist policies have focused on several steps of the rational expectations logic. One line of thought argues that it simply is not correct to claim that changes in *anticipated* money growth don't affect variables such as unemployment. But the same logic that underlies

[2] It is only when firms sense a *relative* increase in demand that stepping up production schedules will increase profits. If firms know that demand for their product is up by, say, 10 percent simply because demand for *all* goods has increased that much, then it won't pay to produce more output. The reason is that a 10-percent rise in aggregate demand will mean that prices for labor and raw materials will be rising at roughly this pace. When costs are rising at the same rate as output prices, profits won't rise as firms produce more output.

this view also tells us that any relation between expected money growth and unemployment (or output) is likely to be quite limited in scope. A second challenge argues that expectations are *not* fully rational, over short periods of time at least. Many economists are troubled by this argument, since it suggests that people ignore or misuse information when making forecasts. Still another view is that even though people forecast rationally, the Fed can bring about *unexpected* money growth, provided the time horizon of money-growth anticipations is sufficiently long relative to the period over which policy is initiated. If the money-growth forecast that matters to the determination of output covers, say, a two-year period, then once expectations are formed, the Fed should have ample time to respond to new information and generate an unexpected shift in money growth.[3]

None of these arguments implies that the central bank *should* adopt activist policies by trying to offset disturbances to the economy. Rather, they suggest that, contrary to the rational expectations argument, activist policies are at least potentially useful—they *could* work. There may be other considerations that argue against activist policies, however.

Is Expected Money Growth Neutral? A venerable proposition in monetary economics states that, *in the long run*, an increase (decrease) in the money-growth rate will produce a proportionate increase (decrease) in the inflation rate and that the level of output will be unaffected. In economists' jargon, money is neutral with respect to production over the long run. These older analyses failed to draw any explicit distinction between expected and unexpected money growth, but what lies behind this work is the notion that in the long run all changes in money growth will be anticipated ones. The novel aspect of the rational expectations theory is the statement that, even in the short run, monetary growth changes that are anticipated will be neutral.

But is this a valid claim? Some economists think not. They argue that even increases in *expected* money growth are likely to raise the rate of production by causing people to readjust their asset holdings. In particular, as expected inflation rises on the heels of higher anticipated money growth, people will decide to hold less of their wealth in the form of money (which bears no interest) and more in the form of financial and real assets. (Real assets are those which provide their owners with physical service flows, such as stereos, refrigerators, computers, factories, and so on.) Why would people undertake such a shift? Because as they come to foresee higher and higher prices down the road, they recognize that their current holdings of money not only yield no interest but also represent command over a smaller and smaller future volume of goods and services. This means that money is providing less service to its holders in terms of its ability to buy things, so people decide to hold less of their wealth as money and more in the form of other assets. But as more new factories and machines are purchased, production quite naturally rises since factories and machines are used to produce output.[4]

[3] Some have criticized the rational expectations view on the grounds that it assumes perfectly flexible prices. But because of information costs or noncompetitive behavior by some firms, prices in reality are likely to be sticky—to adjust only slowly to changes in demand or supply. It has been demonstrated, however, that sticky prices can be compatible with the rational expectations logic. See Bennett T. McCallum, "Price Level Adjustments and the Rational-Expectations Approach to Macroeconomic Stabilization Policy," *Journal of Money, Credit, and Banking* 10 (November 1978), pp. 418-436.

[4] While *firms* might readjust their asset holdings by building new factories and buying new equipment, households of course will purchase either consumer durables or financial assets. Nevertheless, the behavior of households still affects the stock of plant and equipment since the funds they place in the credit markets or the stock market will facilitate the acquisition of new equipment by firms.

How large is this effect of anticipated money growth on output? An exact answer is No one knows; but there seems to be good reason to think the overall effect is probably small. First of all, there is a potential offset to any positive impact of increases in anticipated money growth on output. If people are holding less money, it becomes more costly to buy things—more time and energy are used up running to the bank or the automatic-teller machine. But if more effort is used up transacting, less time is available for producing goods and services, which offsets some of the output gain from having more factories and machines. Second, people already are holding a fairly small percentage of their total wealth in non-interest-bearing money. In the first quarter of 1979, for example, people and firms held about $359 billion of currency and demand deposits.[5] This represents only about five percent of total estimated consumer wealth of some $6.8 trillion. There just isn't much room for a very big effect on the stock of machines and factories stemming from shifts out of non-interest-bearing money. Unless some evidence is turned up showing that this logic is badly off base, the anticipated money-output link appears to be a weak reed on which to build a case for an activist monetary policy.

Are Expectations Rational? The assumption that people form expectations rationally is a key building block in the case against activist policies. But what makes a forecast rational? Unfortunately, the term 'rational' has been used in a number of different senses. Originally, expectations of inflation were said to be rational if, on average, they were formed with full knowledge of the process that *actually* determined the inflation rate.[6] For example, suppose that in every month the inflation rate is equal to the prior month's money-growth rate. Then a rational expectation of *next* month's inflation is *this* month's money-growth rate. Using any other forecasting scheme would yield an irrational expectation. In a sense, this example loads the dice in favor of rational expectations because it suggests that the actual inflation rate is determined in very simplistic fashion. Thus it would be easy to detect such a relationship and use it in forecasting. In truth, the actual inflation process is (1) apparently quite complex and (2) only known approximately.[7] One way to find out whether expectations are rational in this rather strong sense would be to conduct a test. But a direct test requires that we have a good measure of inflation expectations and that we know the process that actually determines the inflation rate. While there are some measures of inflation expectations, they have a number of shortcomings.[8] And a quick perusal of two or three economic journals will convince any reader that there is no generally accepted notion of how inflation gets determined.

Lacking a suitable test to decide the issue, some claim that common sense tells us that expectations can't be rational. After all,

[5]The stock of non-interest-bearing money is actually smaller than this figure. The reason is that although commercial banks cannot make explicit interest payments on demand deposits, they often pay interest indirectly by providing checking-account services at a price below their cost of production (no-charge checking, etc.). It appears likely that explicit interest on demand deposits will soon become legal, so that currency will be the only non-interest-bearing component of money. The outstanding stock of currency presently is a little over $100 billion.

[6]The qualifier 'on average' means that in any *particular* instance expectations can differ from what full knowledge of the inflation process would imply. When we average over *all* predictions, however, these differences should tend to cancel each other, so that there is no *systematic* difference between subjective inflation expectations and the values implied by full knowledge of the actual inflation process.

[7]This represents a problem for the rational expectations theory only to the extent that there are *systematic* gaps in our knowledge of the inflation process—that something very fundamental to determining the inflation rate has gone unnoticed.

[8]Some examples: nonrepresentative samples, lack of quantitative data, brief historical sample periods.

making rational predictions requires that people possess mountains of information about the things that matter for determining inflation and that they also know how it all fits together. Being a less than humble lot, these economists note that since *they* aren't all that sure of the whys and wherefores of inflation, surely the man-in-the-street can't be.

The somewhat disarming response by rational expectations adherents to this argument is to agree with it for the most part but then to claim that, in making key decisions about what to buy and sell, people act *as if* they knew the true inflation process. This shifts the burden of testing away from the question of how people form expectations—a process that is very difficult to observe and measure—and toward the issue of how people behave in various markets. A definitive test here requires that observed outcomes of market processes—quantities bought and sold and prices—be sufficiently different when people have rational expectations from the outcomes that result when they don't. In financial markets, the existing evidence appears quite favorable to the rational expectations view, but in markets for goods and services and in the labor market the evidence is much less clear cut. (See the article by Poole in Suggested Readings.) Thus we must conclude that we don't yet know enough to decide the question of whether expectations are rational in this strong sense of the term.

There is a weaker version of rationality, however, that requires only that people fully exploit relevant information, economically speaking, when making predictions.[9] If people can't improve on their forecasts by better utilizing the information at hand, then the rational expectations result that an activist policy can't influence things like unemployment and output continues to hold. Whether or not this crucial condition holds in reality depends on how people go about *learning* the actual process of inflation. (See the Friedman article in Suggested Readings.) Unfortunately, we know very little to date about how this learning takes place. There is evidence, however, that information on past inflation and past money growth is efficiently exploited in some inflation forecasts, which would imply that the condition for the rational expectations theory to hold is satisfied. (See the Mullineaux article in Suggested Readings). But the expectations analyzed were those of a group of economists rather than those of the public at large, and there may be differences in forecasting ability between the two groups. Once again, we must conclude that the evidence is not convincing enough one way or the other to confirm or deny the view that expectations are rational. No matter how the term is defined, we don't yet know enough about how people form expectations to decide the case for or against an activist policy on these grounds.

Can the Fed Systematically Engineer an Unexpected Change in Money Growth? Participants on both sides of the debate on activist monetary policy seem agreed that there is a causal connection between, say, unemployment and *unexpected* money growth. The question then becomes: can the Fed produce an unanticipated shift in money growth? The rational expectations logic says No. If the Fed systematically shifts its money-growth targets over time in response to the ups and downs of everyday economic activity, people will notice this and build the information into their expectations about money growth.

One response to this argument might be that the Fed could engineer an unexpected shift in money growth by following deliberately deceptive policies—that is, by announcing its intentions to follow one policy but pursuing another. Ethical issues aside, it seems hard to argue that the Fed could fool the public *systematically* about its policies,

[9]The qualifier 'economically' recognizes the fact that forecasting is costly. Forecasting requires time-consuming activities such as information gathering, computation, and reflection. It will be economically rational to consider more information only when the benefits exceed the costs. The benefits of more information come in the form of a better (more accurate) forecast.

provided Fed actions possess some rhyme or reason. Suppose policy shifts are keyed off changes in the unemployment rate. People will come to recognize this and base their policy anticipations not on what the Fed announces but on what they've learned about how the Fed actually behaves. For many reasons, then, deliberate deception should be ruled out as a means of engineering unexpected money growth.

But perhaps there is another route to follow. A recent argument suggests, for example, that if the time horizon over which people form expectations about money growth is sufficiently long, then the Fed probably can bring about an unanticipated policy shift. (See the 1977 article by Fischer in Suggested Readings.) Suppose that the expectations *that are relevant to current decisions by businessmen about how much to produce* were made, say, two weeks ago. Then there is very little time for the Fed to observe an increase in unemployment and respond to it by resetting its targets for money growth. But what if the relevant anticipation about money growth was formed, say, two or three years ago? Then there seems to be ample time for the Fed to recognize a disturbance to the economy and shift its policy stance to counteract it. How long is the time horizon of the money-growth forecast that is actually relevant to decision-makers? Since we know that people frequently make *long-term contracts* to buy and sell certain goods and services (labor, for example), at least some behavior appears related to expectations that span a fairly long horizon. Workers frequently contract to supply labor services for a two-year or three-year period at negotiated terms. Suppose that those terms are predicated on workers' expectations that prices will rise five percent a year and involve an annual wage increase of seven percent. If, one year into the contract period, the Fed observes some recessionary disturbance, it could announce and pursue higher money-growth targets. While workers might revise their inflation expectations as a result, they cannot adjust their wages until a new contract is negotiated.[10] As actual inflation increases, the wage rate adjusted for inflation (the real wage) falls, and firms will hire more workers. Unemployment declines and production rises, temporarily at least. The same result occurs if firms set prices on their products one or more time periods prior to the period over which they will apply (as catalogue stores must do).

These arguments essentially claim that if wages and prices are *sticky* (because of contracts or any other reason), then there may be a sufficiently long horizon of expectations to allow the Fed to produce a systematic deviation of actual money growth from what was expected. Such a policy does not involve deception in the sense discussed above. People recognize the shift in Fed policy, but because it is based on information that becomes available only after the contract is in force, they cannot immediately react to it. Thus the Fed can at least temporarily engineer money growth that is unanticipated.

Is there evidence to support this sticky-price unexpected-money linkage? One study has attempted to determine the length of the horizon over which anticipations of money growth are relevant to production. The evidence was not sufficiently clear cut to identify a two-year horizon as more or less consistent with reality than a one-year horizon. One might argue, however, that either period is sufficiently long to permit the Fed to counteract an observed disturbance. This means that the Fed is at least in principle capable of reducing period-to-period *fluctuations* in the unemployment rate. But it could not affect

[10]Some labor contracts are indexed to the rate of inflation; that is, wages are adjusted automatically according to a prearranged schedule to reflect changes in the average price level. Indexed contracts will force monetary policy to lose its effectiveness only if the wage is indexed in a way which duplicates the effects of one-period contracts. While the majority of labor contracts are not indexed at all, those which are do *not* typically work like a series of single-period contracts.

the *average* unemployment rate over longer periods—that is, maintain a rate permanently lower than that consistent with balanced conditions in the labor market. While more empirical work is sorely needed, this "sticky price in relation to the expectations horizon" argument appears *at this time* the most fruitful ground on which to base a case for the feasibility of activist monetary policy.[11]

DOES 'SHOULD' FOLLOW FROM 'COULD'?: A CASE FOR A MODIFIED PASSIVE POLICY

The rational expectations case against an activist monetary policy is founded on three premisses, each a matter of considerable controversy: (1) people form expectations rationally; (2) expected changes in money growth do not affect output or employment decisions; and (3) while unexpected changes in money growth do influence output and employment, the Fed cannot systematically bring about unanticipated shifts in money growth. Unfortunately, the evidence brought to bear to date has not been sufficiently strong to settle any of these contending issues, so that the question Is an activist monetary policy feasible? has no clear-cut yes or no answer.

Suppose, however, that one judges that theory and evidence have uncovered enough chinks in the rational expectations armor to justify a stabilization role for monetary policy. Does it follow that the Fed *should* undertake activist policies? Not at all. Some economists have long argued that, although activist monetary policies can *potentially* play a useful role in reducing fluctuations in output and employment, the appropriate stance for the Fed is to follow a passive policy (set a constant growth-rate target for money and stick with it). Having studied the historical policy record, they contend that the knowledge about the economy required to carry out a successful activist policy is simply not yet available to policymakers. They also suggest that adopting an activist policy opens the Fed to political pressures that may result in actions that are actually destabilizing in a longer run setting.

The argument against a passive policy is that the Fed would be immobilized during periods when it could take actions that would yield obvious benefits—in the face of some very large recessionary shock to the economy, for example.

But perhaps there is a middle ground between highly activist and passive policies. Given doubts that very activist policies will produce more good than ill, perhaps the best monetary strategy for the Fed is to adopt a fundamentally passive stance (pursue fixed growth-rate targets), *except in the face of major disturbances to economic activity.* Presumably the constant growth rate for money that the Fed would pursue would be one consistent with a low level of inflation over the long run, or perhaps—as some have argued is desirable—a small rate of *deflation* (falling prices on average). A prompt move to such a level of money growth would be undesirable, however, since it would no doubt induce a sizable recession. Hence the implementation of the modified constant-growth strategy would have to be delayed until the Fed had achieved a gradual reduction in money growth to levels consistent with society's long-run inflation goals.

This *modified constant growth-rate policy* combines the major advantages of a passive policy stance—avoidance of ill-timed, destabilizing policy actions—with those of an activist mode—flexibility to respond to *major* disturbances. Policy might still be destabilizing on occasion, however, since there may

[11] It should come as no surprise that this argument has its critics among those in the rational expectations camp. They argue that the type of contract studied is inferior, in terms of the welfare of both workers and firms, to a different kind of contract that would consider *employment* determination as well as wage issues. With this better type of contract, the rational expectations result holds. (See the Barro article in Suggested Readings.) The response to this argument is that though these latter contracts seem better in theory, they are not the kind that we presently find in labor markets.

be problems in recognizing a major shock. But average policy performance should be improved. When the lack of strong justification for activist policies is combined with the historically observed failure of fine tuning, prudent judgment argues strongly for the modified passive policy. Future research may overturn this conclusion and demonstrate either that there is *no scope* for *any* activist policy or that there is considerable justification for frequent stabilization moves by the Fed. Until one or the other of these extreme views is vindicated, however, keeping "hands off" most of the time should "cause less trouble" but perhaps buy us a little good when times are quite bad.

SUGGESTED READINGS

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