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■ Rules and Discretion in Monetary Policy

SHOULD MONETARY POLICY be determined by a legislated rule or by a monetary authority's discretion? Henry Simons (1936) first raised this issue as a choice between *rules* and *authorities*, terms little different than those used in recent discussions. He stresses the value of a rule, such as a law, instead of reliance on an authority's discretion because "definite, stable, legislative rules of the game as to money are of paramount importance to the survival of a system based on freedom of enterprise."¹ Though Simons mentions that laws can change and therefore a rule does not eliminate uncertainty about monetary legislation, his principal focus is the undesirability of delegating power to a monetary authority with a mandate to pursue only very broad goals. Others, for example Modigliani (1977), have argued that monetary policy conducted by just such an expert monetary authority will enhance the economy's performance.

Proposed rules would restrict the Federal Reserve's discretion in various ways. Simons argued that the Federal Reserve be required to keep the price level constant rather than be left to pursue other possible goals. Some proposed rules embody far more radical change in the

U.S. monetary system. One rule espoused by some is a constant growth rate of the money stock.² With reserve requirements fixed and the discount rate tied to open-market interest rates by law, the only judgment necessary at the Federal Reserve would be the open-market purchases of government securities necessary to generate the mandated growth of the money stock. Another proposed rule would fix the level of the monetary base.³ With this rule, it would be possible to eliminate any discretion at the Federal Reserve completely. What are the implications of such radical changes?

The purpose of this article is to provide a guide to the current state of the debate on rules discretion. The focus of this article is the basic issue: What are the implications of a rule that commits future monetary policy, thereby limiting the monetary authority's ability to respond to changes in the economy?⁴

RULES VS. DISCRETION

Discussions of rules and discretion sometimes use seemingly similar, but not identical, definitions of the terms. Any discussion of rules and

¹See Simons (1936), p. 339.

²See Friedman (1959) and Lucas (1980).

³See Wallace (1977).

⁴The debate about rules vs. discretion in monetary policy has a long and interesting history, summarized by Argy (1988) and Carlson (1988). There is also substantial literature on the implementation of monetary policy and the im-

plications for rules, much of it in this *Review*. Goodhart (1989) presents a detailed analysis of the implementation of monetary policy. The long-standing contrast between the monetarist case for rules and the alternative case for stabilization policy is summarized in Mayer (1978).

discretion requires care in using these terms, as well as other seemingly obvious terms such as *policy*.

Policy and Its Instruments

What does the term *policy* mean? In this article, *policy* means a plan of action or a strategy. A policy may either be the outcome of some process or it may be a plan designed specifically to further some goal. In either case, dynamic aspects of the economy are sufficiently important that no sensible strategy can treat events each day, month or year as independent. For example, suppose that the goal is to have zero inflation. The current inflation rate is affected by expectations of future inflation, which in turn depend on expectations of current and future policy actions. As this simple example illustrates, any policy must consider current and future implications of both current and future actions.

A policy requires *instruments* to implement it. Policy *instruments* are the tools manipulated to produce the desired outcomes. The primary instrument of monetary policy in the United States today is open-market purchases and sales of government securities. Additional instruments include changes in required reserve ratios and changes in the discount rate.

Any particular value of the instruments on any particular date can be consistent with many different policies. Only in the context of expected future actions can the values of instruments be considered part of a coherent policy. It is common to refer to current monetary policy as the values of indicators of the monetary authority's actions this week, perhaps the federal funds rate or the growth of the monetary base. This usage is inconsistent with the definition of *policy* as a plan though, because the current and future implications of today's values of instruments or related indicators are clear only in the context of some expected future actions.

Rules and Discretion

What is a discretionary monetary policy? Under *discretion*, a monetary authority is free to act in accordance with its own judgment. For example, if legislation directed the Federal

Reserve to do its best to improve the economy's performance and gave the monetary authority the instruments that it has, the Federal Reserve would have a discretionary monetary policy.

In the context of monetary policy, a *rule* is a restriction on the monetary authority's discretion. A rule involves the exercise of control over the monetary authority in a way that restricts the monetary authority's actions. Rules can directly limit the actions taken by a monetary authority. For example, one simple possible rule would be that the monetary authority hold the monetary base constant. This clearly restricts the use of judgment. A rule need not be as simple as that though. Rules can attempt to limit the objectives pursued by the monetary authority. For example, one possible rule would be that the monetary authority announce a target for monetary base growth over some period to further some well-defined goal and then to hit the target unless predetermined exceptional circumstances arise.

Though a rule imposed by legislation or even constitutionally would be subject to revision, infrequent changes in the rule relative to firms' and households' expectations and decisions make policy more predictable. This would be true even if the application of the rule in a particular instance were sometimes unclear because of ambiguity about the state of the world. The problem facing the monetary authority would be to determine the particular state of the world — for example, whether the economy is in a recession. The rule then would determine the particular choices of the values of the instruments.

Most proposed rules restrict the monetary authority's discretion but do not eliminate it. Simons (1936) proposed a rule that the monetary authority keep the price level constant. Though this rule would restrict the monetary authority's discretion, the authority could still exercise substantial discretion in pursuing this goal. Even with the choice of the particular price index determined and even if the monetary authority had only one possible instrument, perhaps the monetary base, the authority would still have to estimate the growth rate of the monetary base consistent with a constant price level.⁵ This estimate requires a forecast of the demand for the

⁵This restriction to the monetary base as the single instrument could be accomplished by eliminating the discount rate and changes in reserve requirements as instruments

and making some technical changes in the relationship between the Federal Reserve and the Treasury.

monetary base at zero inflation, which almost inevitably requires judgment. Similarly, a rule that the monetary authority keep the growth rate of the money stock constant at, say, 4 percent per year can allow substantial judgment about the way to hit the target. Even a rule requiring the monetary authority to keep the growth rate of the monetary base constant at 4 percent could allow some choice of instruments or of timing. Nonetheless, it is possible to have rules that allow no discretion under any circumstances. If the monetary authority has only one instrument, a rule that the monetary base grow at 4 percent per year can eliminate discretion.

The Issues

There are two leading arguments concerning the desirability of rules or discretion. The first is the desirability of having elected representatives make choices. Simons' (1936) choice was for monetary policy largely determined by elected representatives rather than by a monetary authority. Part of this conclusion is based on a particular set of values: a preference for monetary policy made by elected representatives rather than by experts subject to looser control by the electorate or their representatives.⁶ On the other hand, others have argued that expert economic judgment can contribute to better policy.⁷

The other leading argument concerns the economy's performance under rules and under discretion — that is, the economic implications of committing policy. This argument has two components. The first component is whether, even if policy actions usually would be the same with or without a rule, there are benefits or costs of committing policy. The second component is whether, given the current state of economic knowledge, policy actions that depend on the current state of the economy are likely to improve the economy's performance. These two components of the economic implications of committing policy are closely related. If judgments based on the state of the economy are unlikely to improve the economy's performance, there is little cost of committing policy.

COMMITTING POLICY

A common observation 15 or so years ago was that discretion could be used to produce the same values of the policy instruments as would be feasible with any restriction; hence a rule could not improve on discretion. For example, if a constant growth rate of the money stock were desirable, as Friedman advocated, a monetary authority exercising discretion could produce this outcome.⁸ Furthermore, as Turnovsky (1977, p. 351) noted, "with one exception ... [a constant value of the instrument] is never optimal; that is a judiciously chosen discretionary policy will always be superior." According to this view, because a discretionary policy can produce the same values of the instruments as a rule, a discretionary policy can be no worse than a rule and in fact can even be better.

Time Consistency of Policy

In their analyses of the "time consistency of policy," Kydland and Prescott (1977) and Calvo (1978) show that this general argument against rules is wrong. Consistent with Turnovsky's analysis, suppose that the monetary authority sets the instrument each period based on what seems like the best thing to do starting today.⁹ Kydland and Prescott (1977), Calvo (1978), and Barro and Gordon (1983b) show that such a policy can result in worse outcomes than will result from a rule determining current and future monetary policy. That is, when the economy adjusts to this method of determining monetary policy given the monetary authority's incentives, the economy's actual performance can be worse with discretion than with a rule.

There can be a positive return to committing policy because committing future policy can have substantial effects on the economy today. Any economic policy implemented today takes past expectations as given, which may seem harmless and possibly even desirable. Suppose, as seems safe, that people's actions today depend on their expectations of the future. In any model of the economy, doing the best that can be done starting today yields a path of the instruments for this period and the future. This path starting from today takes past expecta-

⁶Simons (1936, p. 340) wanted to prevent "discretionary (dictatorial, arbitrary) action by an independent monetary authority." Among others, Lucas (1980) indicates a preference for the electorate's greater involvement in monetary policy.

⁷See Modigliani (1977).

⁸See Friedman (1959).

⁹Pindyck (1973) is one example of such sequential optimization with an estimated model.

tions, which are history, as given. If the model is run again next period to get a new path, the values of the instruments for next period may be different from those on today's path even if the state of the economy next period is exactly the same as the one predicted today. This difference in the values of the instruments occurs because the policy implemented next period will not consider the effect of that policy on today's expectations. Today's expectations are history next period. Nonetheless, today's expectations of future policy will affect the economy today and in the future.

If policy is not committed, the monetary authority can have an incentive to generate a surprise, a difference between what people expected to prevail and the actual outcome. In some circumstances, households would be better off if the monetary authority could generate such a surprise *without affecting people's expectations for the future*. This caveat, however, is critical for the veracity of the observation. It is easier to see the issues in a simple, extreme fiscal policy example than in a monetary policy example.

Suppose that a government imposed a one-time tax on capital to pay off all government debt. Further, suppose that firms and households had never thought of such a tax and that the government somehow could guarantee with certainty that it would never again impose such a tax. If such circumstances were possible, this capital levy could make firms and households better off compared to the alternative of paying positive marginal tax rates on income to finance interest on the government debt.¹⁰ The gains from imposing this capital levy would come from the disappearance of efficiency losses associated with positive tax rates to pay interest on the debt. On the other hand, if the tax were announced before it was imposed, the capital stock would be affected because saving and investment would fall in anticipation of the levy. This would have its own efficiency losses. Furthermore, if people's expectations for the future were affected, the possibility of a similar capital levy would affect future saving and would have its own efficiency losses as well.

If the government has an incentive to impose such a capital levy and such a tax can be imposed, the likelihood that the tax will be imposed affects saving and investment. Firms' and households' responses to the possibility of such a tax being imposed can make people worse off even if the tax never is imposed. If it were possible to restrict the government from imposing such a tax, there would be no efficiency losses caused by savers' fear that such a tax would be imposed.

A similar argument can be made about monetary policy. Suppose that the monetary authority has an incentive to generate unexpected inflation. The monetary authority may have an incentive to lower the government's real debt by increasing inflation above what holders of the debt expected when they bought the debt. With a lower government debt, the government could lower marginal tax rates and make firms and households better off. Alternatively, positive marginal tax rates on labor income may result in efficiency losses associated with too little employment and too much unemployment. As a result, the monetary authority may have a goal of lowering unemployment, which it may be able to do by generating inflation greater than expected. Both of these possibilities give the monetary authority an incentive to generate inflation greater than expected. Firms and households, however, will expect values that are consistent with the monetary authority's incentive to generate surprise inflation.¹¹ Other things the same, such an incentive increases the expected inflation rate. If higher expected inflation makes households worse off, the net result is that households can be worse off than if some rule restricted the monetary authority's responses to the incentive to generate unexpected inflation.

Discretion means that the monetary authority's future actions are not restricted. As a result, policies that require a commitment to a particular sequence of actions can be impossible to implement, even if they clearly are preferable. If a monetary authority or a government can commit monetary policy credibly, the net benefits of such commitment can be positive.

¹⁰There might be some actual redistribution of income that made some people better off and some worse off. Nonetheless, the gainers could pay the losers part of their gains and still gain from this action.

¹¹This incentive combined with firms' and households' responses affects the monetary authority's actual plans.

Barro and Gordon (1983a and 1983b) show examples of possible resulting equilibria.

Such commitment might take the form of a law, but it does not necessarily have to be embodied in a law.

The Political Process as a Substitute for an Explicit Rule

By imposing implicit constraints on the monetary authority, the political process itself can substitute for an explicit rule. For example, the Federal Reserve clearly has discretion, but monetary policy is part of a political process. That process can implicitly constrain Federal Reserve actions just as a rule can explicitly constrain them. Knowing that policy is determined by discretion provides no information about whether monetary policy is the same as it would be, close to what it would be or far away from what it would be if it were governed by an optimal rule.

Much of the political structure in a republic is designed to control the behavior of government officials, regardless of whether they are elected or appointed. In addition, the political process can commit policy in the sense that certain policies become impossible or, to be more precise, high-cost alternatives. Constitutional restrictions are one explicit way of constraining behavior. If efficiency losses associated with some set of possible actions by the monetary authority were a serious problem, it is plausible that curbs on the monetary authority's behavior, such as might be written into the constitution, would exist.

Other less obvious aspects of the political structure itself instead may curb any preference for generating an inflation rate different from that expected. It is possible that the monetary authority's incentives, which are determined by the political process, reflect little or no return if they surprise people. It also is possible that the incentive to surprise people is sufficiently large that it has substantial effects on the economy's performance. Though it would be extraordinarily helpful to have good estimates of the monetary authority's incentives in the United States, obtaining such estimates is difficult and current estimates are incompatible and inconclusive.

FEEDBACK POLICIES AND RULES

The desirability of discretion is in large part an issue of whether monetary authorities should

respond to the current or recent state of the economy. A monetary authority can base its response to the economy's state on a rule, or it can use discretion. Nonetheless, if the best monetary policy responds to the state of the economy, there can be costs of limiting the monetary authority's discretion. If the best monetary policy ignores the current state of the economy, there can be a benefit from limiting the monetary authority's discretion with little or no cost. As a result, any discussion of rules and discretion almost inevitably considers the advantages and disadvantages of a monetary authority responding to the economy's state.

A convenient way of examining this issue is in terms of whether feedback policies or policies without feedback are preferable. A *feedback policy* is a policy in which the actions taken depend on the state of the economy. A policy to keep the monetary base growing at a constant rate is an example of a policy without feedback. The same policy with an exception for increases in the monetary base during recessions is a feedback policy. It allows feedback from the state of the economy — a recession — to the monetary base.¹²

The major question about feedback policies is their effect on the economy's behavior. The possible benefits, as well as possible perverse effects, of a feedback policy can be illustrated without many of the complications facing actual policy.

Consider a simple relationship between some measure of the behavior of the economy, y , and some policy instrument, m , as follows:

$$(1) \quad y_t = \alpha + \beta y_{t-1} + \gamma m_t + \varepsilon_t$$

The variable y might be the growth rate of nominal gross domestic product (GDP), the inflation rate or some other policy target. The lagged value of this variable, y_{t-1} , is included in equation (1) to represent that the state of the economy this period depends on its state last period. The variable m might be open-market purchases and sales or some other available instrument. The variable ε_t is an unpredictable shock to y_t . In this equation, β and γ are positive coefficients that indicate the response of the variable y_t to the past value of y , y_{t-1} , and to the policy instrument m_t . Further, α is

¹²A feedback policy can be the outcome under discretion or a component of a rule. Barro and Gordon (1983b) show a feedback policy that is a result of discretion: the feedback

policy reflects to the monetary authority's exercise of its judgment. On the other hand, as McCallum (1987) has suggested, a rule could include an explicit feedback policy.

the predictable component of y that is not associated with past values of y or the policy instrument. Even though the money stock is not a policy instrument in the United States today, for simplicity suppose that y is the growth rate of nominal GDP and m is the growth rate of the money stock.

The economy, of course, is more complicated than equation (1), but most of the arguments for and against feedback policies can be explained in the context of this equation. Equation (1) includes only a single variable, but this is not a real limitation: y can be interpreted as a set of variables. Equation (1) is assumed to be linear and to have constant coefficients, which are possibly severe limitations largely shared by current econometric models. A major limitation of equation (1) is that expectations are not explicitly included. One reason for the importance of expectations, discussed previously, is their importance for the incentives affecting policy. Another reason for the importance of expectations, discussed later, is that the coefficients in an equation such as (1) reflect households' and firms' expectations about policy. This dependence of the coefficients on expectations affects the actual usefulness of an equation such as (1) for policy. For illustrative purposes though, equation (1) suffices.

The Case for Feedback Policies

On the simplest level, the case for feedback policies is transparent. Suppose that the coefficients in equation (1), α , β and γ , are constant and policymakers know the values of these coefficients. One policy without feedback would be a constant growth rate of the money stock. This and other policies without feedback permit the effects of a shock, ϵ_t , to persist over time. On the other hand, a feedback policy can eliminate these persistent effects. If the monetary authority cannot predict the shocks to nominal GDP growth, it is not possible for the authority to offset the initial effect of a shock. Nonetheless, a feedback policy can offset all continuing effects of the shocks. Such a feedback policy for equation (1) is

$$(2) \quad m_t = \frac{y^* - \alpha - \beta y_{t-1}}{\gamma}$$

where y^* is the target growth rate of nominal income. Equation (2) is an explicit example of a feedback policy: the lower last period's growth

rate of nominal GDP is, the higher is this period's growth rate of the money stock. There is feedback from nominal GDP growth last period to money growth this period.

Actually choosing an appropriate policy is hardly so simple though, because among other things any particular equation such as (2) assumes that much more is known about the economy than is realistic. Few, if any, would argue that knowledge about the economy is so advanced that monetary authorities know the equations that characterize the economy's behavior over time, let alone the values of the coefficients in those equations. Suppose that the economy is characterized by equation (1) and that monetary policy is selected from feedback equations of the general form of equation (2). With uncertainty about the particular equations that characterize the economy, a monetary authority might adopt such a feedback policy as follows:

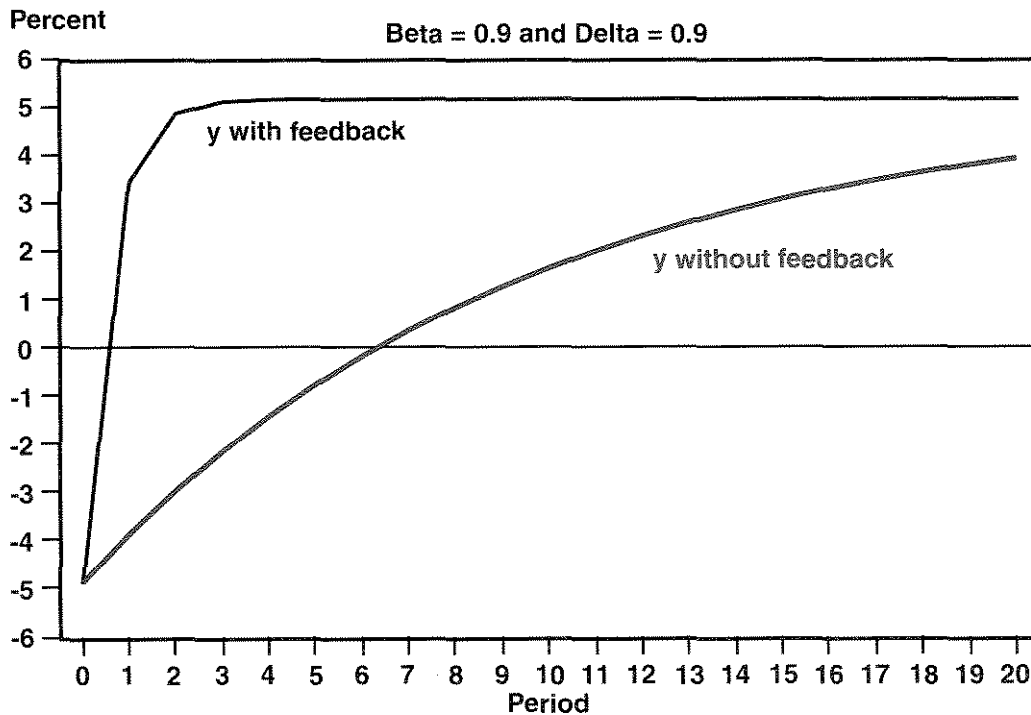
$$(3) \quad m_t = m^* + \delta(y^* - y_{t-1}).$$

In this equation, m^* is the constant growth of the money stock that leads to nominal GDP growth equal to the target growth rate in the long run and δ is a parameter characterizing the response of money growth to deviations of income growth from the target. If the economy is governed by an equation something like (1), a positive response to the observed deviation from the target might seem likely to move the economy toward the target more quickly than it would get there otherwise.

An improvement in the economy's performance with this simple feedback policy is possible. Suppose that feedback equation (3) is consistent with a target annual growth rate of nominal GDP of 5 percent. Further suppose that income growth initially is 5 percent and falls to -5 percent in period 0 because of a shock, that is, $\epsilon_t = -10$ in period $t=0$. With substantial persistence in the economy (β is 0.9) and constant money growth (no feedback), the red line in figure 1 shows that the economy only gradually returns to growth of 5 percent after a shock. A feedback policy using equation (3) can speed up the convergence. For example, with δ equal to 0.9, the rapid convergence shown by the black line occurs.

The usefulness of such feedback is the basis of another argument against a rule. Mullineaux (1985) and Lindsey (1986) suggest that actual desirable policies are quite complex and that

Figure 1
Substantial Persistence in the Economy and Substantial Feedback



any desirable rule would be quite complex. If this is true, any desirable rule might be so complex that writing it down would be much more costly than any possible benefits of having it. The only feasible rules may be simple ones that restrict policymakers' responses to the economy's state, and these restrictions could worsen the economy's performance.

The Case Against Feedback Policies

One interpretation of arguments against rules based on the complexity of monetary policy such as Mullineaux's and Lindsey's is that the economy is too complex to specify a useful model of the economy or a policy for the future. If the discussion is about unspecifiable models, however, economic analysis has little, or more likely, nothing to contribute—all is guesswork. In this case, it is not obvious that judgment uninformed by economic analysis has more value than a rule; after all, the benefits of

discretion are as speculative as the effects of any rule.

The complexity of a desirable monetary rule depends on what is expected of monetary policy. One objective of monetary policy might be to prevent runs on the banking system.¹³ Runs on the banking system occurred at most once every decade or two before the creation of the Federal Reserve.¹⁴ This suggests a low frequency of exceptional circumstances. Other possible purposes of monetary policy, such as stabilizing interest rates on a daily basis, may provide more exceptional circumstances and may be more consistent with an argument that the circumstances are so varied that a useful rule is too complex to be worth trying to formulate it.

Whatever the frequency of exceptional circumstances, feedback policies are not necessarily better than policies without feedback.¹⁵ Knowing whether a particular feedback policy improves or worsens the actual behavior of the

¹³Indeed, this might be a major purpose of monetary policy, a view suggested by Friedman (1959). Friedman's more recent views are presented in Friedman and Schwartz (1986).

¹⁴See Dwyer and Gilbert (1989).

¹⁵Phillips (1957) was the first to show this explicitly. In a general context, Friedman (1953) shows the same proposition.

economy depends on detailed knowledge about the response of the economy to different policies. Suppose that the economy has little persistence, for example β is 0.1. Then with no feedback, the red line in figure 2 shows that the economy returns relatively quickly to 5 percent growth of nominal GDP growth after the same shock as in figure 1. If the monetary authority uses the same feedback policy as in the example in figure 1, the oscillations shown by the black line in figure 2 result. If the economy has little persistence, this feedback policy makes the economy more variable after a shock than it would be with a policy without feedback. Doing something (a feedback policy) can be worse than doing nothing (a policy with no feedback).

The importance of the possibility of worsening the economy's behavior is magnified by the prospect that a monetary authority with a feedback policy may never learn the structure of the economy. If the economy's behavior could be summarized by an equation such as (1) and the monetary authority attempted to stabilize the economy, the effects of the policy on nominal GDP and expectations might make it impossible for the monetary authority ever to converge to correct estimates of the economy's responses to different monetary policies.¹⁶ Some economists believe that firms' and households' ability to converge to a reasonable working knowledge about the economy is far from ensured. It is not obvious that a monetary authority can converge to knowledge about the economy when its learning has substantial effects on the economy's behavior.¹⁷

Evidence on the Value of Feedback Policy

What is the evidence concerning feedback policies relative to policies without feedback? In

the context of simple equations such as (1), some evidence about feedback policies has been advanced recently.¹⁸ McCallum (1987) provides some evidence that, since World War II, a simple feedback rule for targeting nominal GDP growth would have been better than either actual policy or a constant growth rate of the monetary base. This evidence is based on taking an equation such as (1) and simulating it under the alternative policies. Taylor (1985) has examined the implications of targeting nominal GDP for the behavior of real GDP. Perhaps his major result is that targeting nominal GDP may have undesirable implications for fluctuations of real GDP. Both of these analyses are based on very simple characterizations of the economy. Whether they constitute more than preliminary evidence is open to serious doubt.

Among other criticisms, these and other analyses of alternative policies must deal with what sometimes is called the Lucas critique. Lucas' (1975) general point was that any evaluation of alternative policies must carefully consider the implications of changes in policy for expectations, and unless the changes in expectations are handled very carefully, commonly estimated economic models can be worse than useless in predicting the effects of changes in policy. This point can be illustrated in the context of equation (1). With y interpreted as nominal GDP growth and m interpreted as money stock growth, the St. Louis equation and the St. Louis model are examples of models such as equation (1) that could be the basis of a stabilization policy such as equations (2) or (3).¹⁹ Some analyses of the St. Louis equation correctly argued that it is not structural in the sense that the equation is likely to change if the monetary authority's behavior changes. The estimated equation at least partly reflects the monetary authority's be-

¹⁶This issue of convergence is similar to the issue of convergence of the economy to an equilibrium when firms' and households' expectations influence the behavior of the economy. More precisely, the issue is convergence of markets to rational expectations equilibria. Bullard (1991) sketches this research and provides references.

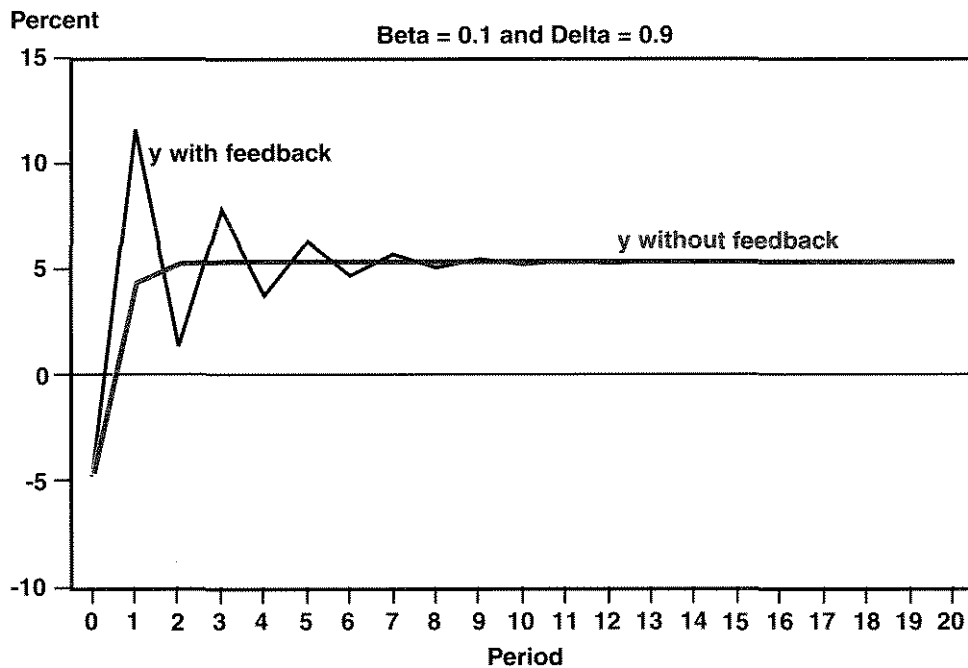
¹⁷Dwyer (1992) shows that a standard semi-logarithmic demand for money combined with equation (3) can generate chaos, which suggests that nonconvergence can be dramatic. Butler (1990) provides an introduction to the mathematics of chaos in economics.

¹⁸Lindsey (1986) reviews earlier work.

¹⁹See Andersen and Jordan (1968) and Andersen and Carlson (1970). Holbrook (1972) and Cooper and Fischer (1974),

among others, analyzed the implications of the St. Louis equation or model for alternative short-run stabilization policy. This has seemed ironic to some because a common tenet of monetarism is that a rule without feedback would be preferable to discretion or a rule with feedback. See Mayer (1978). It is worth noting that forecasting the effects of drastically different policies was not why the originators estimated the model. The force of the observation that a monetarist model could be used for stabilization is muted but not eliminated by recent instability in this equation, instability that can be seen for example in Carlson (1986). Variants of the St. Louis equation are not the only representations of the economy that appear to have non-constant coefficients over time. This instability is a well-known aspect of large econometric models.

Figure 2
 Little Persistence in the Economy and Substantial Feedback



havior and households' expectations of policy. That is, the values of the coefficients β and γ in equation (1) reflect households' expectations of monetary policy. If monetary policy changes, the values of these coefficients are likely to change, and before the new policy is implemented, it may be quite difficult to figure out what the new values will be. Hence without large amounts of judgment, an equation such as (1) cannot be used to estimate the effects of radically different future policy or to formulate a useful feedback policy.

Lucas' point can be applied more generally than just to simple equations such as (1). In many so-called structural econometric models, expected inflation appears in various equations in the model and expected inflation itself is estimated by an equation relating inflation to past values of inflation. Such simple expectations equations generally will be different for different policies. This means that simple evaluations of alternative policies using such structural models are highly suspect. In any evaluation of alternative policies, it is important to be clear about what expectations of prior policy are built into the model and how the model will change

with a new policy. In the current state of knowledge, it is dubious whether such an exercise can be more than broadly suggestive and even the suggestiveness is open to doubt.

An alternative and quite likely better way to examine the effects of feedback policies is to compare the U.S. economy's performance under different government policies. It is commonly thought that the government began systematically using policy to stabilize the economy after World War II and, at least to the same degree, did not use such policies before then. Though the conclusions are somewhat controversial, the evidence presented by Romer and by Balke and Gordon suggests that the economy has been no more stable since World War II than it was in prior years.²⁰ The case has yet to be made that stabilization policy in the postwar period has improved the economy's performance.

SUMMARY

In the last 20 years, the terms of the debate about rules vs. discretion have shifted dramatically. At one time, it was widely believed that discretion could accomplish anything that a rule

²⁰See Romer (1989) and Balke and Gordon (1989).

could accomplish. The monetary authority could exercise its judgment to produce whatever policy a rule might specify in advance if the rule were the best policy. If a deviation from the policy that would be imposed by the rule were desirable, the monetary authority's hands would not be tied if it had discretion. The following is a more general but closely related line of argument: A rule is a constraint, and, in general, constraints make it impossible to accomplish what could be done otherwise.

It now is understood that rules can have benefits precisely because they restrict future policy choices. The mere possibility that a monetary authority will take some action can affect households' expectations and the effects on expectations can have negative effects on the economy's performance. Furthermore, some policies depend on committing future policy actions, and leaving judgment in the monetary authority's hands restricts the monetary authority's ability to pursue policies that require commitment.

A judgment about the desirability of rules or discretion hinges in part on judgments about how much control over monetary policy should be given to appointed officials and their advisers. Some proposed rules for the monetary authority leave some discretion. For example, with a rule that the monetary authority keep the price level constant, the monetary authority could exercise substantial judgment about the best means of reaching this end. Nonetheless, even if some discretion remains, there can be a positive return from committing policy. The size of the actual gain in any particular country from committing monetary policy by a law, a constitutional restriction or a similar device depends fundamentally on how much incentive a monetary authority has to generate surprise inflation and how much commitment is implicit in the country's political process.

Judgments about rules vs. discretion and whether a monetary authority should respond to the state of the economy also hinge on what can reasonably be expected from monetary policy given current knowledge about the economy. Responding to the state of the economy can be destabilizing; doing something can indeed be worse than doing nothing. Though many attempts have been made to estimate the effects of feedback policies and rules, estimating the effects of monetary policy on an economy's actual behavior is tricky. Besides the difficulties associated with attempting to specify a model of

the economy adequately, estimates of expectations in a very different environment are required. It is dubious whether the effects of feedback policies and various rules estimated to date provide more than broadly suggestive evidence.

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