

Panel Discussion

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Given the assignment of discussing improvements in the conduct of monetary policy, my almost inevitable reaction is to turn to the particular policy rule that I have been promoting for several years. In just a minute, I will review the case for this rule and consider the main objections that have been raised. But first it is necessary to emphasize what I mean by adoption of a policy rule. A rule is (to me) a numerical formula specifying settings of a controllable instrument variable in response to macroeconomic indicator variables that can actually be observed. By adoption of such a rule I do not have in mind its imposition from outside, say by constitutional amendment or congressional directive, or by means of contract with the executive branch of the government. It is difficult to imagine any of those routes resulting in a sensible and operational formula in the United States. Instead, what I have in mind is that the central bank itself adopt some such formula, for internal use in determining a set of instrument settings to be used as the starting point in its decision-making process, presumably as one of the several inputs to this process. This concept of a rule is similar to that described by John Taylor in his recent Carnegie-Rochester paper (1993) on rule-like behavior.

The particular rule that I have studied and promoted treats nominal GNP as the target variable and the monetary base as the instrument, with base growth rates set each quarter so as to keep nominal GNP growth close to a steady, noninflationary pace. (Here "noninflationary" might mean 2 percent per year; this discussion will treat the target trend inflation rate as given.) There are feedback adjustments to past velocity

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growth and to recent GNP target misses. Objections can of course be raised concerning both the target and the instrument variables. Let me now discuss some of these objections in light of the papers presented at this conference.

Regarding the (nominal) GNP or GDP target, some critics would favor traditional monetary aggregates and others would prefer direct targeting of the price level—or some other weighted average of price level and output movements. I favor GDP because one can be confident that keeping its growth close to the target value will result in inflation close to the desired rate on average, over a span of years. Such is not the case for M1 or M2; the recent “stability” of M2 velocity is unlikely to obtain in the future.

And GDP growth seems preferable to a direct inflation target, even if inflation control is the main goal for the central bank, for three reasons. First, because prices react more slowly than output in response to monetary actions, cycling and instability are more likely with a price level (or inflation) target. Second, the output-stabilizing properties of a smoothed path for nominal GDP are probably better than for a smoothed path of the price level. About this we cannot be certain, because the profession has a very poor understanding of the short-run dynamic interactions between nominal and real variables (that is, of aggregate supply or Phillips curve behavior). But, third, this poor understanding implies that it is more difficult to design a rule for achieving inflation targets than a rule for achieving GDP growth targets.

Some economists (for example, Hall 1984) would prefer a target that gives more weight to output movements and less to inflation than does a GDP target, which weights them equally. My reaction is that choice of some “optimal” weights again relies on knowledge that the profession does not possess. This is not a claim that GDP targeting is optimal, but that it provides a simple measure that is very likely to work reasonably well under a variety of assumptions.

One practical objection is that GDP statistics are not produced often or quickly enough and are significantly revised after their first release. But the essence of this proposal is to use some comprehensive measure of nominal spending; it need not be GDP. Other measures could be developed on the basis of price and quantity data that are collected more often and more promptly.

Objections to the use of a monetary base instrument are at least as strongly held as those regarding the target. Most central banks utilize an interest rate instrument, of course, and some academic analysts suggest that this is desirable. I would admit that the variability of short-term interest rates would probably be substantially greater with the base kept at rule-specified levels week by week, and that banks would be forced to hold an increased volume of excess reserves. It is unclear to me, however, that the consequent social costs would be sizable.

In any event, I have recently (McCallum 1994) investigated the possibility of using an interest rate instrument—and smoothing its movements at the weekly frequency—so as to keep monetary base values close to “intermediate target” levels at the quarterly frequency, with these levels dictated by the monetary policy rule that is under discussion. This study is a rather crude one, but it does attempt to take realistic account quantitatively of shock variances and response magnitudes for the U.S. economy. And it suggests that this type of compromise scheme would be feasible—that the fed funds rate could be manipulated weekly to hit base targets designed to yield macro-desirable GNP targets at the quarterly frequency, with considerable funds rate smoothing and lender of last resort services at the weekly frequency and not too much more variability than at present.

But then, it will be asked, why not simply express the policy rule in terms of quarterly settings of an interest rate instrument? The answer has a theoretical and a practical dimension. First, interest rates have (as Poole’s paper in this volume stresses) ambiguous meanings regarding the stance of monetary policy; the funds rate may be high because of current tightness or past looseness of monetary policy. Or, as I put it to my students, if the Fed wants interest rates to be lower, then it must raise interest rates. What this implies in practical terms is a more complicated policy feedback rule than one involving the monetary base. In my simulation studies, I have not yet been able to find a simple interest rate rule that performs nearly as well as a base rule. (I have not tried one of the form suggested in John Taylor’s paper—that will be high on my agenda.)

The studies that I have conducted over several years have been designed mainly to determine whether a simple feedback rule, one that adjusts base growth settings in response to past long-term changes in velocity (reflecting institutional change) and recent GNP target misses, would keep GNP close to target paths when the system is being hit by shocks of the type that we have experienced historically. The main difficulty in conducting appropriate simulations is in choosing the correct model of the economy. My approach is to presume that we cannot be confident about the correct model, and so to proceed by finding whether the rule under study yields reasonably good results in a variety of different models. In studies of the U.S. and Japanese economies, a rule of the form just described has been found to perform quite well (see McCallum 1988, 1990, 1993, 1994). Valuable additional results have been provided by Judd and Motley (1991, 1992) and Duecker (1993) in work conducted at the San Francisco and St. Louis Federal Reserve Banks, respectively.

A challenge to the robustness of these findings was developed at the Board of Governors by Hess, Small, and Brayton (1993). One of their arguments is that the portfolio of models does not include any in which

the instrument-to-target linkage involves an interest instrument and an I-S-type explanation of aggregate (real) expenditure on current output, as in Fuhrer's and also Taylor's papers for this conference. That is a valid point that warrants future attention, although this is not to agree that theirs is necessarily the "correct" way; both kinds of models deserve consideration.

A second argument by Hess, Small, and Brayton was that even in my own models, a breakdown in performance has occurred in the years since 1985 (when my initial studies concluded). But to this argument the response is as follows. In their work, as in my earlier studies, the type of GNP target path involved was one of a growing-level type that calls for a return to a prespecified path after shocks have driven the system away from that path. But, as stressed by Goodhart and Viñals, many analysts would argue that *growth rate* targets would be preferable, in which case past misses are treated as bygones. If shocks hitting the economy are predominantly of the permanent or highly persistent type, instead of highly transitory, then it would be better to treat past target misses as bygones. But—to come to the point—with GNP growth rate targets, in fact, very little deterioration in performance occurs in the years since 1985, at least through 1992. These results are reported in my forthcoming Bank of Japan paper (McCallum 1994).

There are some reasons, of course, for favoring a target path for GNP or the price level that is of the growing-level type, which does not treat past misses as bygones. Consequently, I have also considered targets that are weighted averages of the two types just mentioned. I have found that a weighted average target, one that gives a weight of 80 percent to the growth rate path and 20 percent to the growing-level path, yields results that are quite desirable in the following sense. The root-mean-square (RMS) target misses relative to the growth rate target-path are virtually the same as when growth rate targets are aimed for, and the RMS behavior relative to a growing-level path is reasonably good. In particular, the simulated GNP values have a distinct tendency to return to the growing-level path, rather than drifting away arbitrarily far (as is the case when pure growth rate targeting is pursued). These weighted average targets therefore seem quite attractive. And the satisfactory results for the post-1985 period obtain for them, as well as for the growth rate targets. It is apparently the attempt to return to a growing-level target, after the shocks of recent years, that gives rise to the difficulties found by Hess, Small, and Brayton.

References

- Duecker, Michael J. 1993. "Can Nominal GDP Targeting Rules Stabilize the Economy?" *Federal Reserve Bank of St. Louis Review*, vol. 75 (May/June), pp. 15-29.
- Hall, Robert E. 1984. "Monetary Strategy with an Elastic Price Standard." In *Price Stability and Public Policy*, A Symposium Sponsored by the Federal Reserve Bank of Kansas City, pp. 137-59.
- Hess, Gregory D., David H. Small, and Flint Brayton. 1993. "Nominal Income Targeting with the Monetary Base as Instrument: An Evaluation of McCallum's Rule." In Working Studies 1: Part 2, *Operating Procedures and the Conduct of Monetary Policy: Conference Proceedings*, edited by Marvin Goodfriend and David H. Small. Division of Monetary Affairs, Federal Reserve Board: Washington, DC, March.
- Judd, John P. and Brian Motley. 1991. "Nominal Feedback Rules for Monetary Policy." Federal Reserve Bank of San Francisco *Economic Review* (Summer), pp. 3-17.
- . 1992. "Controlling Inflation with an Interest Rate Instrument." Federal Reserve Bank of San Francisco *Economic Review* (1992 no. 3), pp. 3-22.
- McCallum, Bennett T. 1988. "Robustness Properties of a Rule for Monetary Policy." *Carnegie-Rochester Conference Series on Public Policy*, vol. 29 (Autumn), pp. 173-203.
- . 1990. "Targets, Indicators, and Instruments of Monetary Policy." In *Monetary Policy for a Changing Financial Environment*, edited by William S. Haraf and Philip Cagan, pp. 44-70 and 193-97. Washington, DC: The AEI Press.
- . 1993. "Specification and Analysis of a Monetary Policy Rule for Japan." *Bank of Japan Monetary and Economic Studies*, vol. 11 (November), pp. 1-45.
- . 1994. "Monetary Policy Rules and Financial Stability." National Bureau of Economic Research Working Paper No. 4692, April. To be published in Bank of Japan's conference volume.
- Taylor, John P. 1993. "Discretion vs. Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy*, vol. 39 (Autumn), pp. 195-214.