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Bennett T. McCallum

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ABSTRACT

This paper takes issue with two basic conclusions prevalent in the literature on central bank behavior. First, the paper argues that it is inappropriate to presume that central banks will, in the absence of any precommitment technology, necessarily behave in a "discretionary" fashion that implies an inflationary bias. Since there is no functional connection between average rates of money creation (or inflation) and policy responsiveness to cyclical disturbances, it is entirely feasible for the bias to be avoided. In other words, there is no necessary tradeoff between "flexibility and commitment." Second, to the extent that the absence of any absolute precommitment technology is nevertheless a problem, it will apply to a consolidated central bank plus government entity as well as to the central bank alone. Thus contracts between governments and central banks do not overcome the motivation for dynamic inconsistency, they merely relocate it.

Bennett T. McCallum
Graduate School of Industrial Administration
Carnegie Mellon University
Pittsburgh, PA 15213
and NBER

Two Fallacies Concerning Central Bank Independence

Bennett T. McCallum*

An important body of literature has grown up over the past few years on institutional arrangements for central banks, with some of the more notable contributions being provided by Kenneth Rogoff (1985), Robert Flood and Peter Isard (1989), Susanne Lohmann (1992), Alex Cukierman (1992), Torsten Persson and Guido Tabellini (1993), and Carl Walsh (1994).[1] Specifically, these studies consider alternative arrangements, such as contracts between a nation's government and its central bank, that might leave the latter free to pursue activist countercyclical stabilization policy while simultaneously inducing it to avoid the inflationary bias of "discretionary" monetary policymaking as identified by Kydland and Prescott (1977) and Barro and Gordon (1983).

Impressive as this literature is, however, it is the contention of the present paper that it is significantly flawed--perhaps critically so--by two fallacies pertaining to fundamental presumptions of the analysis. These are not technical errors, of course, but inappropriate interpretive mappings between analytical constructs and real world institutions. To develop that claim, and point out some practical implications, is the objective of the present paper.

I. Analytical Setting

In expositing the argument it will be helpful to have some algebraic expressions at hand for purposes of reference. Let us then adopt the setup of Olivier Blanchard and Fischer (1989, pp.

596-614), as their review is widely studied.[2] Thus we assume that the central bank (CB, for short) seeks to minimize $L(\pi_t) = w\pi_t^2 + (y_t - k\overline{y})^2$, where $0<w$ and $k>1$, in an economy in which output obeys $y_t = \overline{y} + \beta(\pi_t - \pi_t^e + u_t)$, where π_t is inflation, y_t is output, and $\overline{y}>0$, $\beta>0$. Also, u_t is a (white noise) random shock term, while π_t^e is $E_{t-1}\pi_t$, the rational expectation of π_t given information dated t-1 and earlier. Combining these two expressions we obtain

(1) $L(\pi_t) = w\pi_t^2 + [(1-k)\overline{y} + \beta(\pi_t - \pi_t^e + u_t)]^2.$

For simplicity we assume that the CB directly manipulates the inflation rate π_t and that the target value of π_t is zero. These latter assumptions could be relaxed without substantial effect on the argument.[3]

From the rules vs. discretion literature we know that if the CB minimizes (1) on a period-by-period basis, taking π_t^e as a given piece of data in each period, then the chosen values of π_t will be

(2) $\pi_t = \dfrac{\beta(k-1)\overline{y}}{w + \beta^2} + \dfrac{\beta^2}{w + \beta^2}\pi_t^e - \dfrac{\beta^2}{w + \beta^2} u_t.$

Then, with rational expectations (RE), these values turn out to equal

(3) $\pi_t = \dfrac{\beta(k-1)\overline{y}}{w} - \dfrac{\beta^2}{w + \beta^2} u_t$

in equilibrium. But if instead policy choices are made to conform to a consistent rule that correctly takes account of private agents' (rational) expectational behavior, then the chosen values of π_t will instead satisfy

(4) $\pi_t = \dfrac{-\beta^2}{w + \beta^2} u_t$,

and this equation will also describe equilibrium outcomes.[4] Consequently, since the same level of output obtains on average in the two cases, the outcomes will be superior if the latter type of behavior—with its lower average inflation rate—is adopted.

In the literature under discussion, however, it is almost invariably assumed that if the CB is not externally constrained to do otherwise, it will generate π_t values in accordance with the so-called discretionary formula (3). Interest centers, then, on alternative arrangements that might be attractive under that presumption—appointing CB governors with personal preferences for a high value of w (Rogoff (1985)), for example, or devising contracts between the CB and the government that would induce the former to behave more like formula (4) (Persson and Tabellini (1993) and Walsh (1994)).[5] In addition, there are analytical results concerning interactions of CBs with fiscal authorities that are based on the presumption that CB behavior conforms to (2) rather than (4)—see, e.g., Alesina and Tabellini (1987) and Debelle and Fischer (1994). This presumption that (2) prevails is of course based on the dynamic inconsistency between π_t values that

would be chosen in advance and those that appear preferable, conditional upon already-realized values of π_t^e, when period t is at hand. In the language of the literature, there is no "precommitment technology" available to the unconstrained central bank.

II. First Fallacy

I would contend, however, that it is inappropriate to simply presume that the CB behaves according to (2) rather than setting the constant term and π_t^e coefficient in this behavioral formula equal to zero and thereby eliminating the inflationary bias while retaining the desirable countercyclical response to the shock u_t as prescribed by (4). In actual practice there is, after all, no tangible barrier that would prevent a CB from behaving in this more desirable fashion. Of course there exists no "technology" for inescapably precommiting future behavior, but that does not imply that such behavior is infeasible. All that is needed for avoidance of the inflationary bias in (3) is for the CB to recognize the futility of continually exploiting expectations that are given "this month" while planning not to do so in the future, and to recognize that its objectives would be more fully achieved on average if it were to abstain from attempts to exploit these temporarily-given expectations.[6]

As some readers will already know, the monetary policy situation each month (or each FOMC meeting) is closely analogous to that faced by parents whose beloved child has just misbehaved.

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Some parents actually do follow a policy of punishing their child after each such instance, even though it appears optimal not to punish him "this time" (since doing so would make everyone unhappy and would not undo the misbehavior) while promising to punish him[7] for all future acts of misbehavior. Following the always-punish rule, moreover, leads to a reduced frequency of misbehavior and therefore to few cases of punishment. But for parents to follow such a rule-like policy they do not need any precommitment technology, they just need to do it. And the same is true for a CB. Accordingly, it seems inappropriate to presume that CBs never behave in this sensible fashion but instead repeatedly engage in fruitless attempts to exploit predetermined but endogenous expectations.

In objecting to the standard way of conducting analysis in the independence literature, I am not quarreling with the Barro-Gordon (1983) use of the discretionary solution for positive analysis. Their explanation of why we have observed above-optimal inflation in most nations during the postwar fiat money era has considerable appeal, although it is likely that the actual reason involved a belief in long-run inflation-unemployment tradeoffs. But to use the same analysis for normative purposes is, I am arguing, much less satisfactory.

An alternative way of expressing the argument is to note that there is in fact no necessary tradeoff between "flexibility and commitment," as is often claimed in the literature.[8] The first of these two characteristics is concerned with the u_t coefficient

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in equation (2) and the second with the other terms. But clearly there is no physical or legal connection between these coefficients; they can be chosen independently.

Of course the literature includes various objections to the assumption that rule-like behavior as in (4) can be sustained. But the arguments are not compelling. The most persuasive point, in my opinion, is the one made by Flood and Isard (1989)--namely, that rules cannot plausibly be made contingent on all conceivable types of shocks that might occur. Actual rules must therefore be contingent upon only a subset of the relevant shocks. And in this case, as Flood and Isard show, it might be better to violate the partially state-contingent rule by implementing the discretionary outcome in those periods in which some shock realization is unusually large and of an unanticipated type. But again it is possible for the CB to implement an outcome analogous to (4), rather than (2), in those periods in which large and unusual shocks occur. If the CB possess enough knowledge to respond to the shock, as the Flood-Isard scheme presumes, it can do so without attempting to exploit existing expectations. Thus a vigorous response to shocks does not require an inappropriate trend rate of inflation.

III. Second Fallacy

Let us turn now to the second of this paper's disagreements with the literature on CB independence. This one pertains to an ingenious result recently developed by Walsh (1994) and Persson and Tabellini (1993) concerning contracts between a nation's government and its CB. Specifically, these writers have independently shown

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that if the government provides the CB with a "contract" (i.e.,
incentive scheme) that makes its own financial rewards negatively
dependent upon the inflation rate,[9] then it is possible to induce
optimal performance as in (4) even though the CB's choices are
governed by the sort of discretionary decision-making that would
lead to (3) in the absence of this contract provision.

The problem with this result is that such a device does not
actually overcome the motivation for dynamic inconsistency, it
merely relocates it. Specifically, under the proposed arrangement
the government has to enforce the contract--e.g., reduce the CB's
financial rewards when inflation is high--but the government has
exactly the same incentive not to do so as is identified by the
Kydland-Prescott and Barro-Gordon analysis.[10] Indeed, if the
absence of any precommitment technology is actually a problem, then
it must apply to the consolidated CB-government entity just as it
would to an entirely independent CB. If the technology does not
exist, then it does not exist. Nor is this problem overcome by
saying that the objective function must be specified at the
"constitutional stage" of the political process. Again the problem
is that constitutions need to be enforced. That they are liable to
nonenforcement in the sphere of monetary arrangements can be
illustrated by the fact that no constitutional amendment has ever
taken the United States off of the metallic standard that is
clearly implied by Sections 8 and 10 of the Constitution. But in
fact the United States has not been on an operative metallic

standard for many years--since 1971, at the very least, or arguably since 1961, or 1933, or even earlier.[11]

From a practical perspective, the identification of this second fallacy should not be interpreted as a denial of the usefulness of (i) CB charters that give a central position to inflation avoidance or of (ii) arrangements like New Zealand's that make a CB governor's (real) remuneration negatively dependent upon inflation. But the effect of such arrangements is not principally to constrain the CB to act in accordance with the government's objectives, but rather to increase the difficulty to the government of bringing pressure to inflate upon the CB at times of above-average unemployment. Such arrangements give central banks an increased opportunity to behave in the rule-like manner that they can adopt, if they choose to do so.

III. Conclusion

In short, the literature's standard interpretation of its analytical results is misleading in two ways: it underestimates the likelihood of good monetary policy performance by an independent central bank, and it overestimates the likelihood of beneficial effects stemming from CB contracts or arrangements devised and enforced by the government. In both ways the literature tends to underestimate the benefits of central bank independence, i.e., partial insulation from the pressures of routine day-to-day political activity in democratic nations.

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Footnotes

*Graduate School of Industrial Administration, Carnegie Mellon University, Pittsburgh, PA 15213

1. These developments grew out of the work of Finn Kydland and Edward Prescott (1977) and Robert Barro and David Gordon (1983). Guy Debelle and Stanley Fisher (1994) provides a good survey, as does the introduction to Persson and Tabellini (1994).

2. Our notation differs in two respects: we use $L(\pi_t)$ (not M) to denote the objective function and π_t^e (not π_t^*) for the expectational variable $E_{t-1}\pi_t$. In this setup the shock u_t should not necessarily be interpreted as a "supply shock," as it is by some writers. The reason is that supply shocks would change the market-clearing value $\bar{y}$, and thereby make the adopted objective function inappropriate.

3. It is also important to note that the objective function could be generalized to take account of expected _future_ values of π_t^2 and $(y_t - k\bar{y})^2$ without affecting anything of significance.

4. A procedure for obtaining these expressions, in the case in which the objective looks into the infinite future, is described in Bennett McCallum (1993). There it is argued that the distinction between the two types of policymaking behavior is not well conveyed by the "rules vs. discretion" terminology. The distinction is,

instead, between rules that do and do not accurately take account of private sector expectational behavior in their design.

5. These are two prominent possibilities. Others are discussed by Flood and Isard (1989) and Lohmann (1992).

6. In terms of the language employed in the useful introduction to Persson and Tabellini (1994), the CB needs to violate the problem's "incentive constraints." It can do so because these are not actually constraints placed on the CB from outside, but reflections of its own misplaced "ambition to move the economy from a second best towards the first best." Is the equilibrium without incentive constraints implementable? My presumption is that if the CB consistantly behaves in any fashion, then private agents will come to expect it to do so--i.e., that expectations are rational.

7. Surely I will be permitted to use the male pronoun in this context.

8. See, e.g., Matthew Canzoneri (1985, p. 1062), Blanchard and Fischer (1989, p. 610), Lohmann (1990, title), and Debelle and Fischer (1994, p. 18).

9. These financial rewards may be thought of as the governor's salary (Walsh, 1994) or as a transfer payment to the CB from the government. In fact, the contract provision could be related to anything that enters the CB's utility function in addition to the inflation and employment considerations expressed in (1). Also, the contract might pertain to money growth settings (or other measures of monetary policy expansiveness) rather than inflation.

10. Thus, when unemployment is higher than desired by the government, it will try to induce the CB to be more expansionary that is called for by policy rule (4) by devising extra types of financial (or nonpecuniary) rewards for the CB if it accomodates.

11. The year 1971 was of course when President Nixon unilaterally ended the Bretton Woods arrangement whereby the U.S. would sell gold to other nations' CBs at $35 per ounce. In 1961 the U.S.-promoted formation of the gold pool showed that the U.S. was reluctant to conduct its monetary policy so as to keep the market price of gold from exceeding $35 per ounce, while 1933 was the year in which the dollar was drastically devalued and U.S. citizens' right to own gold was ended. None of this implies that the gold standard is an especially desirable standard.