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On Credible Monetary Policy and Private Government Information

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Credible and optimal monetary policies are considered in environments in which the government observes a signal that is correlated with the state of the economy. When the signal is public information it is optimal for monetary policy to be conditioned upon it. The extent to which such conditioning should occur when the signal is the private information of the government depends upon the government's incentives to misrepresent information. It is shown that in some cases the Ramsey policy is incentive compatible, in others it is not. In the latter cases, policy must be constrained to be incentive compatible. This may result in "penalty phases" along the equilibrium path following apparent "mistakes" by the policy maker; it may result in the optimal monetary policy making no use of the signal. *Journal of Economic Literature* Classification Numbers: C73, E52, E58. © 2001 Academic Press

1. INTRODUCTION

A credible monetary policy is one such that after every possible history the government has no incentive to deviate from it and implement some publicly observable alternative policy. Credible government policies have received much attention in the literature. In particular, recent papers have reworked earlier reduced form game theoretic models of credible policy to include richer specifications of the non-government private sector.[1] Methodologically, progress has been made by making explicit use of recursive equilibrium concepts. This has led to new insights and new computational strategies. In contrast, the incentive for a government to exploit any private information that it might have about the economy in its implementation of monetary policy has received much less attention.[2]

[1] Seminal contributions in the new literature include Chari and Kehoe [10], Stokey [26], and Chang [8]. See Barro and Gordon [5] for an influential reduced form game theoretic model.

[2] However, see Canzoneri [7] for an important exception. A number of papers have considered environments in which the government has private information about its own preferences and these preferences do not change; see, e.g., Cho and Matsui [12].

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However, such private information may be important. Romer and Romer [23] show that private Federal Reserve forecasts are significant predictors of commercial forecast errors. This suggests that the Federal Reserve may indeed possess information that others do not. Romer and Romer also provide some evidence that the Fed acts upon this information. Borrowing from the contract theory literature, monetary policies that have been designed to eliminate the incentives for a government to exploit its private information by misrepresenting it will be referred to as incentive compatible. As argued below incentive compatibility places additional constraints on monetary policy. These may be useful in understanding the structure of monetary policy and in understanding recent episodes in monetary history.

To make the idea of credible and incentive compatible monetary policies concrete, consider a macroeconomy with the following features: (i) a population of households that must use cash to make goods purchases and (ii) a population of monopolistically competitive firms that set their prices in each period before the government selects the period's monetary growth rate. Such an environment is fairly standard and has been analyzed by Chari *et al.* [9], and Ireland [15, 16]. Assume an upper bound on feasible monetary growth rates, and, for the moment, complete information. Then the ex ante optimal policy will (roughly speaking) prescribe a low monetary growth rate. However, once firms have set their prices, the government can reduce the distortion that stems from the imperfectly competitive goods sector and can increase welfare by raising the monetary growth rate above that prescribed by the ex ante optimal policy and anticipated by firms. In the absence of any private information such deviations are automatically observable. A monetary policy is *credible* if the government has no incentive to take such an observable deviation.

Now consider adding a productivity shock and providing the government with a privately observed signal correlated with this shock.[3] Suppose that the timing of events is as follows. First, firms set their prices; then the government receives the signal. Having received the signal, it chooses a monetary growth rate, and, finally, the productivity shock occurs. If the signal were publicly observed, the optimal policy would prescribe increasing the monetary growth rate in response to a good signal and, conversely, reducing it in response to a bad signal. However, when the signal is not publicly observable the government may face an incentive to deviate from the optimal policy. In particular, it might be tempted to implement the higher monetary growth rate associated with a good signal on the receipt of a bad signal. In doing so it can reduce the distortion associated with the

[3] A signal will be referred to as good (bad) if it indicates an increased (reduced) likelihood of a high productivity shock.