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Optimal monetary policy when lump-sum taxes are unavailable: A reconsideration of the outcomes under commitment and discretion

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Abstract

We re-examine optimal monetary policy when lump-sum taxes are unavailable. Under commitment, we show that, with alternative utility functions to that considered in Nicolini's related analysis, the direction of the incentive to cheat may depend on the initial level of government debt, with low debt creating an incentive towards surprise deflation, but high debt the reverse. Under discretion, we show that the economy will not necessarily tend to the Friedman Rule, as Obstfeld found. Instead it may tend to the critical debt level at which there is no cheating incentive under commitment, and inflation and could well be positive here.

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1. Introduction

As is well known, optimal, welfare-based monetary policy, even in a flex-price, efficiently functioning economy, is subject to a time consistency problem if the

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government does not have lump-sum taxes or transfers at its disposal. This is because 'surprise' inflation may be a substitute source of non-distorting revenue, alleviating the problem of being unable to reach the first-best, 'Friedman Rule' outcome of a zero nominal interest rate. In this world, monetary policy must be implemented by open-market swaps of money and government debt, and the optimal second-best policy is to use debt to smooth intertemporally the distortions caused by inflation. Surprise inflation can help reduce these distortions.

Although this problem is familiar, significant puzzles about it remain. First is that the optimal monetary policy is likely to be degenerate, in that the best surprise rate of inflation to pick is infinity, because this maximises the lump sum of revenue appropriated by the government. Attention was drawn to this feature by Lucas and Stokey (1983). However, a well-defined optimum can be obtained if money enters the economy in such a way that there is a welfare cost of current inflation, since this cost must then be balanced against the benefits. This feature was introduced in an interesting contribution by Nicolini (1998). The presence of the cost, on the other hand, leads to a second puzzle: it may now be the case that the time consistency problem takes the form of an incentive to create surprise *deflation* (i.e. inflation lower than expected). This inverts all our usual ideas about time inconsistency in monetary policy. A third puzzle arises if we assume policy is conducted under discretion, rather than (as implicit in the discussion so far) under commitment. In this case lack of trust in the government's projected policy might be conjectured to lead to higher expected and actual inflation; but in fact it has been argued that discretion will lead in the long run to *lower* inflation – in particular to convergence to the Friedman Rule where inflation is negative. Such an argument is presented in two papers by Obstfeld (1991, 1997).[1]

In this paper we reconsider this optimal monetary policy problem. We do so using Nicolini's model of a simple cash-in-advance economy, thereby avoiding the first of the above-mentioned puzzles. We extend his analysis of the case of commitment a little, but our main contribution is to the case of discretion, which he did not study. The model enables us to conduct a pure welfare-based analysis of optimal policy under discretion, avoiding Obstfeld's need to postulate an ad hoc objective function for the policymaker. Our analysis shows that the second and third of the above-mentioned puzzles are related. Specifically, we find that under discretion it is not necessarily true that in the long run the economy will converge on the Friedman Rule. Depending on consumer preferences, it may converge on a different steady state where inflation is above the Friedman-Rule level, and quite possibly positive. We call this the 'time-consistent steady state'. The force which makes such a steady state possible turns out to be the incentive which exists towards surprise deflation under commitment. This latter counteracts the more familiar incentive towards surprise inflation, and makes it possible that, under commitment, a critical level of inherited government debt exists such that the two incentives exactly cancel out, leading to no temptation to behave in a time-inconsistent manner. It transpires that

[1]Here we refer to the case of Obstfeld's analysis where the authorities' objective function is as close as possible to private utility functions.