Why do monetary policies matter?  
An experimental study of saving and inflation in an overlapping generations model

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The following is an examination of experiments using an overlapping generations model, where inflation is determined by the monetary policy and by the amount of average saving within each period. A new experimental setup is used that allows us to observe more details in the process of expectation forming and to separate this process from the actual saving process. In contrast to experimental findings by Lim, Prescott, Sunder; Marimon, Spear, Sunder; and Marimon, Sunder we have found that (1) agents do not form first-order adaptive expectations; (2) subjects ‘over-save’ for precautionary reasons; and as a result (3) the so-called Friedman conjecture holds, i.e. monetary policies
which are equivalent in static equilibrium exhibit different levels and different volatility with regard to inflation in the experiment. This may generate important policy trade-offs between monetary regimes. We then discuss our findings and relate them to current research on adaptive learning and the role it may have in ranking alternative monetary policies. © 2000 Elsevier Science B.V. All rights reserved.

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### 1. Introduction

The inflationary impact of monetary policy is a classic theme in macroeconomics, which has long been investigated through theory and econometric studies. More recently it has also been the focus of an interesting series of experiments. Following the resurgence of interest by macroeconomists in theories of adaptive learning (see Evans and Honkapohja, 1999, for a thorough review), Lim et al. (1994), Marimon and Sunder (1993, 1994, 1995) and Marimon et al. (1993), all ran experiments to investigate whether the inflationary processes in overlapping generation economies (OLG) with multiple equilibria would be better explained by adaptive expectations or by the rational expectations hypothesis.

In the setting underlying the experiments, which closely mimics an OLG model studied theoretically by Sargent and Wallace (1987), Marcet and Sargent (1989), Bruno and Fisher (1990), monetary policy is public knowledge and subjects use money as a unique asset to transfer wealth across two periods. The model displays a well-known indeterminacy problem:\(^1\) under any monetary policy, the economy has two stationary rational expectation solutions – a low (classical) inflation stationary state (ISS) and a high ISS – and a continuum of non-stationary rational expectations equilibria which reach the high ISS in the long run. On the other hand, the stability of the ‘adaptive dynamics’ implies convergence towards the low ISS under a large class of adaptive learning rules and for a large set of initial conditions.

The inflation paths observed in the first wave of experiments (e.g. Marimon and Sunder, 1993, 1994) documented a broad convergence towards the stationary equilibrium with low inflation, giving substantial support to adaptive learning as a valuable theory of equilibrium selection.

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\(^1\) The model is an OLG version of Cagan’s model of hyper-inflation (Cagan, 1956).
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