Behavioral Learning Equilibria in the New Keynesian Model

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Abstract

We generalize the concept of behavioral learning equilibrium (BLE) to a general high dimensional linear system and apply it to the standard New Keynesian model. For each endogenous variable in the economy, boundedly rational agents learn to use a simple, but optimal AR(1) forecasting rule with parameters consistent with the observed sample mean and autocorrelation of past data. Agents do not fully recognize the complex structure of the economy, but learn to use an optimal parsimonious AR(1) rule, which satisfies the orthogonality condition for RE. We find that BLE exists, under general stationarity conditions, typically with near unit root autocorrelation parameters. BLE thus exhibits a novel feature, persistence amplification: the persistence in inflation and output gap is much higher than the persistence in exogenous fundamental driving factors. We provide a general framework to find and estimate BLE using the notion of iterative E-stability, and show that the standard New Keynesian model fits aggregate U.S. data reasonably well under a BLE. We analyze optimal monetary policy under BLE and, in contrast to the RE benchmark, we find that a finite optimal Taylor rule exits for a range of calibrations, and that the transmission channel of monetary policy is stronger under BLE at the estimated parameter values.

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