

A constant gain learning framework to understand the Behavior of US Inflation and Unemployment in the 2nd half of 20th century

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Abstract

I build an adaptive learning model where policymakers use constant gain learning algorithm to update their knowledge/estimates of the model every time period. The optimal policy is enacted every time period by policymakers assuming their current knowledge of the model to be perfect. This framework is used to study the behavior of post war US inflation and unemployment. The model accurately explains the Great Inflation- while the rational expectations equilibrium is characterised by low inflation, learning leads to disequilibrium dynamics when initial knowledge of the model is incorrect. Specifically, under estimation of the natural rate, persistence of inflation and slope of Phillips Curve by policymakers explains the high and persistent nature of inflation between 1963-1980. The convergence of learning to rational expectations equilibrium explains the subsequent disinflation. I further show that, within the learning framework, policymakers exposed themselves to the time consistency problem between 1960-1979 by pursuing an artificially low target rate of unemployment. Since Volcker, policymakers have accepted the natural rate hypothesis and hence have avoided the inflationary bias arising from time consistency problem.