

After the Rational Expectations revolution in macroeconomics we observed a big change in the treatment of expectations in economic models. Rethinking macroeconomic theory to take into account how private decision-makers form expectations appropriate to their environment became a major job for academic macroeconomists. In my research, I look for ways that a central bank can influence private-sector expectations to achieve better outcomes. Specifically, I study whether adaptive learning dynamics can lead to rational-expectation outcomes and how these dynamics might be affected by heterogeneity in perceptions and beliefs.

In my job market paper I consider a model where the central bank and the private sector learn the structure of the economy simultaneously but with different initial beliefs, where at most one belief set can correspond to rational expectations. In my baseline case, I assume the central bank has a misspecified econometric model as in Cho, Williams and Sargent (2002) while the private sector has a correctly-specified econometric model, though both must learn the correct parameters of the model. Cho, Williams and Sargent (2002) use this misspecified model to explain the fluctuations, escape dynamics, of the inflation rate of the 70's. For this baseline case I show that the escape dynamics of Cho Williams and Sargent (2002) disappear, so their escape dynamics critically depend on the assumption that the private sector possesses rational expectations. On the other hand, if it is the private sector that has the incorrectly specified model, escape dynamics can return but in a more plausible environment where the central bank is better informed than the private sector. Finally, I show that differences in perceptions can allow the central bank to exploit the private sector to achieve a lower level of inflation with the same level of unemployment.

In a second paper, I analyze the effects of government announcements on the expectations of the public. Using a New Keynesian model, I show that a central bank with an extraneous instrument, "cheap talk" announcements, can influence the private sector to achieve better outcomes than could be obtained by manipulating the nominal interest rate alone. Announcements are effective only if the central bank has full knowledge of how private sector expectations are formed, in which case the central bank can achieve lower inflation and higher output. Otherwise the private sector learns to discount announcements, and we observe convergence to the Nash equilibrium levels of inflation and output.

A third paper, written with Prof. John Duffy, examines the stability of rational expectations equilibria under adaptive learning in Diamond's (1965) overlapping-generations model. Dynamically inefficient equilibria are possible in this model, and we consider whether they can be stable under adaptive learning. Lucas (1986) showed that if agents use a simple adaptive learning rule, they will converge upon the unique monetary equilibrium of a two-period pure exchange OLG model in which money is the only single outside asset. Here, we show that if we add productive capital to the model, adaptive learning does not eliminate the multiplicity of stationary equilibria. Thus, both dynamically efficient and inefficient equilibria can be stable under adaptive learning.

In current work, I am investigating whether the central bank can influence the private sector if it commits to a particular inflation rate and announces this commitment to the private sector. Moreover, the central bank assumes the private sector will believe it is committed to this target rate in deriving its optimal policy function. My initial results show the central bank is able to achieve credibility in time as the private sector's expectations converge to the central bank's target rate.