DIVISION OF STATISTICS
Colloquium

Shawn Osell, Ph.D.
Student in Economics
Northern Illinois University

TITLE: Interest On Excess Reserves In A Bayesian DSGE model with a Banking Sector

DATE: Friday October 28, 2016
TIME: 2:00 p.m.
PLACE: DUSABLE HALL 212

Abstract

The purpose of this monograph is to examine the dynamics of a DSGE model when a monetary authority has the ability to adjust the interest rate that it pays on a bank's reserves.

Since October 2008, the Federal Reserve has had the authority to pay interest to commercial banks for funds stored at the district banks. Simultaneously, the Federal Reserve significantly increased the country's money supply, and thus its balance sheet, through an unprecedented process called Quantitative Easing. Despite the significant increase in the money supply, inflation in the US has remained under 2 percent –contrary to what economic theory would predict. The question that this study would like to answer is can the Federal Reserve counter inflation via its interest on reserve policy instead of using its traditional open market operation tool? This would be analogous to asking if the Federal Reserve can now adjust its target rate independent of the money supply growth rate. In order to examine this issue, this paper develops a general equilibrium model that includes a banking sector that earns interest on its total reserves. Simulations are then conducted to analyze the impact on the model's endogenous variables as a result of changing the interest paid on reserves. Specifically, I am interested to see how excess reserves can be manipulated through interest on reserves in order to influence the equilibrium price level and aggregate output.

The focus of this paper then turns to Bayesian estimation of the model's parameters. We describe a common Bayesian approach for es- timating the likelihood function. The analysis proceeds by describing various non-linear methods known as particle filters, or Sequential Monte Carlo. We apply these various Bayesian methods to the paper's DSGE model and compare the results.