

Monetary Policy and Learning

Course description

Rethinking monetary policy after the Great Recession is one hot challenge for academics and policy makers. Indeed, the last economic and financial crisis questioned in many ways the economic environment as we have considered it so far.

Indeed, the inefficient conventional monetary policy during the Great Recession can be partially explained through the expectations channel that has been widely underestimated.

Modeling private expectations, i.e. households and firms, is now a major concern for policy-making and an opportunity to improve the efficiency of policy making through the expectations channel. Indeed, obtaining and processing information to forecast is costly for private agents. The ones with limited resources will therefore not integrate all potentially available information but only a part that is attainable in terms of costs. This deviation from rationality is illustrated in economics and neuroeconomics.

Monetary policies based on rational expectations could be inefficient in the short and medium term by underestimating the effects of private agents through the expectations transmission channel. Departing from rational expectations hypothesis allows to confirm or not monetary policies that are advised assuming for rational expectations. Furthermore, assuming rational expectations considerably impacts the choice of policy instruments and the behavior of central banker, i.e., being hawkish or dovish.

As Woodford remarks (2013), familiar results in the theory of monetary policy obtained with this hypothesis could be challenged by alternative approaches to the specification of the expectations of economic decision makers. This lecture takes the stance of adaptive learning algorithm (Molnar and Santoro 2014) as the main deviation from the full rational expectations equilibrium that is to be studied.

The course is divided into three parts.

The first part is devoted to literature review and understanding the main challenges of discretionary monetary policy conduct as well as the optimal monetary theory in New Keynesian models. We will solve models in which we first assume for rational expectations to well understand the underlying mechanism.

Then in the second part, we will focus on learning algorithm and how to solve a model with a simple adaptive learning algorithm.

Finally, the last part consists in a computational tutorial using Matlab and Dynare to compute social welfare loss as well as equilibrium solutions.

Prerequisites

The course is part of the Master program in economics, and exchange students as well as PhD students are welcome. Participants need to have a sound knowledge of macroeconomics and curiosity.

Organization & Literature

The lecture takes place on two weeks from the 19th of June to the 29th of June 2018.

First week: **19.6.2018** 16:30 - 18:00, LG 0.222/3; **20.6.2018** 8:00 - 9:30, LG 5.154;
21.6.2018 8:00 - 9:30, LG 3.152/3; **22.6.2018** 9:45 - 11:15, LG 3.154

Second week: **26.6.18:** 8:30-11:30 h Raum 0.421, **27.6.18:** 8:30-10:00 h Raum 0.421,
29.6.18: 8:30-10:30 h Raum 0.421

Grading

The grading is based on a seminar work of 10 pages maximum covering the topics defined during the first session (19.6.). In addition students have to present this seminar work during a short oral presentation for 15 minutes.

The exam has to be passed in order to pass the class. By passing the course Master students receive 5 ECTS points. Feel free to ask further questions regarding the course content or the organizational details. Please send any inquiries to Marine Charlotte André, andrem@unistra.fr

Tentative outline of topics

1. Literature overview

- (a) Rational expectations and its limits
- (b) Learning and extensions
- (c) Optimal monetary policy

2. Solving a NK model accounting for welfare loss

- (a) Under Rational Expectations
- (b) Under adaptive learning

3. Simulations and extensions

- (a) Introduction to Dynare
- (b) Simulations of our previous calculations and applications
- (c) If enough time, extensions to experimental macroeconomics and other learning algorithm.

Indicative bibliography

Molnár, K., & Santoro, S. (2014). "Optimal Monetary Policy When Agents Are Learning". *European Economic Review* 66, 39–627.

Evans, G. W., & Honkapohja, S. (2001). *Learning and expectations in macroeconomics*. Princeton University Press.

Evans, G. W., & Honkapohja, S. (2003). "Adaptive learning and monetary policy design". *Journal of Money, Credit and Banking* 35(6), 1045–1072.

Evans, G. W., & Honkapohja, S. (2006). "Monetary Policy, Expectations and Commitment". *Scandinavian Journal of Economics* 108(1), 15–38.