SYLLABUS: BAVARIAN GRADUATE PROGRAM IN ECONOMICS
Advanced Macroeconomics: September 22-27, 2024

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Goal: The objective of this course is to learn the toolset of *quantitative* dynamic macroeconomic analysis and see how these tools are being applied to answer substantive questions. The gap between modern structural macroeconomics and structural microeconomics is rapidly narrowing. Consequently, the tools and some of the applications we cover will also be useful to students who are interesting in using *structural* models to address questions related to labor supply, household finance, public finance and even health economics.

Background: Do you know what a maximum likelihood estimator is? Do you love solving constrained optimization problems with paper and pencil and like writing Matlab computer programs to solve them? Have you been introduced to the representative agent? Do you like him? If your answer to the first three questions is "yes" but your answer to the fourth question is "no" then this course is for you!

Sunday, September 22, 2024

19:00 Welcome Meeting/Dinner

Monday-Thursday Daily Schedule (September 23-26, 2023)

8:00-9:00 Breakfast
9:00-10:30 First Session (Lecture)
10:30-11:00 Coffee Break
11:00-12:30 Second Session (Lecture)
12:30-14:00 Lunch
14:00-15:30 Third Session (Problem Session)
15:30-16:00 Coffee Break
16:00-17:30 Fourth Session (Problem Session)
17:30-19:00 Free Time
19:00 Dinner

Friday Schedule (September 27 2024):

8:00-9:00 Breakfast
9:00-10:30 First Session (Lecture)
10:30-11:00 Coffee Break
11:00-12:30 Second Session (Lecture)
12:30-13:30 Lunch
13:30-15:00 Third Session (Problem Session)

Course Outline

Day 1

Arrow Debreu competitive equilibrium (CE). First and second welfare theorems. Applications to insuring natural disasters and the role of short selling on bond prices during a sovereign debt crisis.

Day 2

Asset Pricing. Intertemporal consumption-based asset pricing fundamentals and how tools from asset pricing are being applied to measure the economic costs of climate change and strategies for coping with it.

Fiscal Policy in Productive Economies: Steadystate equilibrium, balanced growth path and MIT shocks. Applications to fiscal policy and secular stagnation in infinite horizon and lifecycle frameworks.

Day 3

Recursive competitive equilibrium and modern quantitative macro. Quantitative Modern Macro Theory and how modern macro economists combine theory and data to answer substantive questions. Computational techniques, parameterization (calibration, estimation via GMM, MLE) and assessment. Applications to real business cycle theory and New Keynesian economics.

Day 4

Incomplete markets or macro meets micro. Sources of inequality: uninsured earnings risk, medical expense risk, mortality risk, gender, race, education, family structure. Household finance. Computing numerical solutions to recursive competitive equilibria in infinite horizon and lifecycle economies.

Day 5

Applications of macro models with detailed microeconomic structures. Distributional effects of monetary and fiscal policy over the lifecycle and in aging societies. Interactions between private and public insurance for long-term care risk.

Final Exam

An open-book final exam will be held on October 11, 2024 at your home institution. The exam will take 90 minutes and will have three parts. 1) Multiple choice questions. 2) Short answer questions. 3) A longer question with multiple parts.

Course Material

The two main references for the course are Ljungqvist and Sargent (Recursive Macroeconomic Theory, MIT Press) and the lecture notes. Registered students will be provided with lecture notes and additional readings are provided in the lecture notes for each topic.

Technology

It is strongly recommended that students bring a laptop to the course with software that can be used to carry out numerical computations with Matlab installed. Much of modern Macro is computational and an important objective of the course is to acquaint students the computational techniques that are used by macroeconomists to: identify structural shocks; compute equilibria of structural models; parameterize structural models and assess them.