Topics in Macroeconomics
Spring Term - 2021

Administrative Details

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Here is the code to join our team at Microsoft Teams for this course: ifc3dn3. You may use your institutional email address to log in to Microsoft Teams.

Overview

In this course we will discuss the main numerical techniques that are used to solve state-of-the-art models in macroeconomics and other fields of economics. An essential feature of many of these techniques is that they allow for nonlinearities, such as borrowing constraints that occasionally bind.

We then proceed to analyse economies with heterogeneous agents. Many models in macroeconomics assume the existence of a complete set of financial contracts, providing agents with full insurance against idiosyncratic shocks. Of course, this is a very strong assumption, but it allows one work with a "representative agent model", which can be solved using relatively simple techniques. We relax the complete markets assumption and learn how to solve models with agents who have different wealth levels, depending on the individual histories. We discuss the effects of income and wealth heterogeneity on aggregate outcomes such as the level of interest rates, the amount of precautionary savings and the properties of the business cycle.

Next, we will study the role of frictions in the labour market. We will start from partial equilibrium models where a worker is searching for a wage offer from a fixed distribution of wages. This will make connection between the unemployed workers and their state. Then we move to general equilibrium models with matching. This approach to search has the advantage that it makes unemployment neither "voluntary" nor "involuntary" concept. Instead, unemployment is the outcome of a decentralised equilibrium, which may or may not be optimal. Finally, to address the optimality issue we study competitive search.

In the last part of this course, we will go through the literature which studies the impact of financial imperfection on the labour market outcomes. Unemployment is arguably the biggest risk workers face in their lifetime. Even if there is no perfect insurance market, workers nonetheless self-insure. They accumulate assets while employed, which they consume when unemployed. We will study how precautionary saving motive affect labour market outcomes. We then study the welfare implications of government mandated Unemployment Insurance (UI) benefits at aggregate and cross-section levels.

Topics:

- **Part 1: Dynamic Programing**
  - [-] Introduction to Julia
  - [-] Numerical Dynamic Programming
  - [-] Stochastic Discrete Cake-Eating
- **Part 2: Incomplete Financial Markets**
  - [-] Endowment Economy, Huggett [1993]
  - [-] Production Economy, Aiyagari [1994]
  - [-] Aggregate Fluctuations, Krussell and Smith [1998]
- **Part 3: Search and Matching**
  - [-] Job Search Theory, McCall [1970], Shimer et al. [2005]
  - [-] Random Search: Diamond-Mortensen-Pissarides
  - [-] Dirtected Search, Moen [1997], Guerrieri et al. [2021]
- **Part 4: Self-insurance in Frictional Labour Markets**
  - [-] Search and Precautionary Savings, Lise [2013]
  - [-] Matching with Precautionary Savings, Krusell et al. [2010]
  - [-] On-the-Job Search and Inequality, Chaumont and Shi [2018]
  - [-] Wealth and Wages. Krusell et al. [2019]
  - [-] Inequality and Sorting, Eeckhout and Sepahsalari [2021]
  - [-] Self-insurance in Turbulent Labour Market, Baley et al. [2021]

Other References

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Gaston Chaumont and Shouyong Shi. Wealth accumulation, on the job search and inequality. Penn State, 2018.

Jan Eeckhout and Alireza Sepahsalari. The effect of asset holdings on worker productivity. *Working Paper*, 2021.

Veronica Guerrieri, Benoit Julien, Philipp Kircher, and Randall Wright. Directed search and competitive search: A guided tour. *Journal of Economic Literature*, 2021.

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Jeremy Lise. On-the-job search and precautionary savings. *Review of Economic Studies*, 80:1086–1113, 2013.

J.J. McCall. Economics of information and job search. *Quarterly Journal of Economics*, 84:113–126, 1970.

Espen Moen. Competitive search equilibrium. *Journal of Political Economy*, 105:385–411, 1997.

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