

Economics 712-003
Search Theory and Applications
Spring 2023

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Class Schedule: Tuesday, 5:15 - 8:15 pm

Textbook: There is no textbook for the course. The course will be based on published and working papers.

1 Content and Objective

Search-theoretic models of exchange have proven extremely useful in understanding certain markets and phenomena that are difficult — if not impossible — to understand within the traditional, frictionless Walrasian paradigm. This course will introduce the fundamental tools and models that are used in search theory, and explore applications in several key areas of research.

The first application we will cover is that of long-term relationships in frictional markets, with the leading example being the labor market. The primary objective in this section of the course is to understand the optimal behavior of workers looking for a job, the optimal contracts that firms offer, and the implied equilibrium dynamics. We will consider a variety of models, and address topics such as unemployment duration, wage dispersion, the equilibrium level of unemployment, worker flows, and mismatch.

The second topic that we will cover focuses on spot trades in decentralized markets, with the leading example being over-the-counter financial markets. The primary objective in this section of the course is to understand the types of intermediaries and financial institutions that arise to overcome frictions in the exchange of assets, and how these trading arrangements affect asset prices and liquidity. We will consider several different model specifications, and address topics such as asset pricing, liquidity, and market microstructure.

The last topic that we will cover is the introduction of asymmetric information into environments with search frictions. Again, we will consider several different model specifications, and study how information frictions distort trade in frictional markets, and how certain policies can either ease or exacerbate these distortions.

2 Assessment

The course will have three requirements: a presentation of an existing research paper (30 %), homework assignments (30 %), and a final research proposal (40 %). We will review each of these requirements in greater detail in class.

3 Course Outline

3.1 The basics

- Some helpful mathematical review:
Poisson processes and bargaining theory
- The basic job search model:
McCall (1970)
- Price posting and the Diamond paradox:
Diamond (1971)

3.2 Labor markets

Benchmark models

- Random search and bargaining:
Mortensen and Pissarides (1994), Hosios (1990),
- Price posting, wage dispersion, and on-the-job search
Burdett and Judd (1983), Burdett and Mortensen (1998), Postel-Vinay and Robin (2002)
- Competitive/directed search models
Moen (1997), Burdett et al. (2001), Menzio and Shi (2011)

Applications

- We will use these models to study:
 - The determinants of unemployment and fluctuations over the cycle.
 - The determinants of wages, wage dispersion, and wage growth over time.
 - Match quality, productivity, and output.
 - The effects of labor market policies.
- Quantitative assessments of labor search models
 - Shimer (2005b), Hornstein et al. (2011)

Extras

- If we have time, we might also cover:

Sorting and matching: Shi (2001), Shimer (2005a), Eeckhout and Kircher (2010)

Stock-flow matching models: Coles and Smith (1998)

Incorporating wage-tenure contracts: Burdett and Coles (2003), Shi (2009)

3.3 Over-the-counter Financial Markets

Benchmark models

- Pure decentralized markets:

Duffie et al. (2007), Hugonnier et al. (2022),

- Semi-centralized markets:

Duffie et al. (2005), Lagos and Rocheteau (2009), Lester et al. (2015)

Applications

- We will use these models to study:
 - The determinants of liquidity.
 - The welfare cost of trading frictions.
 - The role of intermediaries.
- Some quantitative assessments of OTC models:

Gavazza (2016), Hugonnier et al. (2020)

Extras

- If we have time, we might also cover:

Search-theoretic models of money: Lagos and Wright (2005)

Monetary policy, liquidity, and asset prices: Lagos (2010), Lester et al. (2012)

3.4 Asymmetric information in frictional markets

Benchmark Models

- Random search environment:
Chiu and Koepl (2016), Bethune et al. (2022)
- Competitive search environment:
Guerrieri et al. (2010), Guerrieri and Shimer (2014)
- Semi-competitive environment:
Lester et al. (2018)

Applications

- We will use these models to study:
The effects of adverse selection in labor markets.
Learning and information aggregation in OTC market.
Market “freezes” and the effects of policy interventions.

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