

# Topics in Macroeconomics A

## Master in Economic Analysis

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**Objective.** The goal of this course is to study models with search and spatial frictions.

The first part of the course will consist of a theoretical exploration of search equilibrium models. In these models, agents must sample the market for trading opportunities, and this search process is typically costly and its outcome is uncertain. We will discuss the three main paradigms that are used in the literature, which differ mainly in the underlying degree of market competition (bilateral monopoly, monopolistic competition, and perfect competition).

The final goal is to build equilibrium models where rational decision making by individuals is consistent with the absence of market clearing (e.g. unemployment) and with other features of several markets that are hard to square with classical Walrasian theory (e.g. the fact that homogeneous workers are sometimes paid different wages). We will discuss macroeconomic applications of the theory, mainly to labor and housing markets (though this approach is used in several other areas, including finance, monetary economics, industrial organization and family economics).

The second part is dedicated to models that incorporate an optimal location decision of both workers and firms, with a focus on the associated macroeconomic implications. We will start with the classical models of residential location choice: Rosen-Roback and McFadden. We will then move to Krugman's core-periphery model, the first in which regional heterogeneity can be sustained as part of a general equilibrium.

Next, we will introduce the advances that gave rise to Quantitative Spatial Economics (QSE). These advances allowed for the estimation of very rich and realistic spatial models with a large number of heterogeneous locations. QSE has been very successful in the study of policies that are spatial in nature such as the construction of highways and transportation networks, information technologies, migration, or climate change.

Finally, we will study models which, although not initially developed to incorporate a spatial dimension, have proved very useful to study the macroeconomic implications of spatial frictions. Namely, models of production organization and models of input-output networks. In both cases, we will first introduce a non-spatial version of the workhorse models and then an application to spatial macroeconomics.

**Grading.** The final grade will be based on:

1. A referee report on a seminal or contemporary paper (20%)
2. A numerical assignment consisting of replicating and extending the code of a quantitative paper (20%).
3. Final exam (60%)

## Outline

### PART I: SEARCH THEORY

1. Random search and Bargaining  
P, Chapters 1,2, 4, 5 & 8. RSW, sections 4 & 7. LS, 26.1-26.4 & 26.7.3. MP, sections 2-3 & 5
2. Directed or Competitive Search  
RSW, section 5. LS, section 26.4.4. JGKW 1-2, 3.2 & 5. MP, section 4.1
3. Random Search and Price Posting  
RSW, section 6. MP, section 6

### PART I: SPATIAL MACROECONOMICS

1. The Classics and the New Economic Geography  
Roback (1982), McFadden (1977), Krugman (1991)
2. Quantitative Spatial Economics  
Allen & Arkolakis (2014), Eaton & Kortum (2002)
3. The Organization of Production  
Sattinger (1993), Lucas (1978), Garicano & Rossi-Hansberg (2006)
4. Input-Output Networks  
Acemoglu, Carvalho, Ozdaglar & Tahbaz-Salehi (2012), Oberfield (2018)

## Main references (to be expanded).

### Part I:

- Ljungqvist, L. and Sargent, T. (LS) *Recursive Macroeconomic Theory*, MIT Press 2000. Chps. 6 and 26.
- Pissarides, C. (P), *Equilibrium Unemployment Theory*, MIT Press, 2000.
- Rogerson, R. Shimer, R. and Wright, R. (RSW), “Search-Theoretic Models of the Labor Market: A Survey,” *Journal of Economic Literature*, 2005, 43(4): 959-988.
- Mortensen, D. and Pissarides, C. (MP), New Developments in Models of Search in the Labor Market, Ch. 39 in Ashenfelter and Card, *Handbook of Labor Economics*, volume 3B, Elsevier, 1999.
- Julien, B. Kircher, P. Guerrieri, V. and Wright R. (JKGW), “Directed and Competitive Search: A Guided Tour,” *Journal of Economic Literature*, 2021, 59(1): 90-148.

A comprehensive list of seminal papers and more recent articles will be provided in class.

### Part II:

- McFadden, D. “Modelling the Choice of Residential Location.” Cowles Foundation Discussion Papers 477, Cowles Foundation for Research in Economics, Yale University, 1977.
- Roback, J. “Wages, Rents, and the Quality of Life,” *Journal of Political Economy*, 1982, 90(6): 1257-1278.
- Krugman, P. “Increasing Returns and Economic Geography,” *Journal of Political Economy*, 1991, 99(3): 483-499.
- Eaton, J. and Kortum, S. “Technology, Geography, and Trade,” *Econometrica*, 2002, 70(5): 1741-1779.
- Allen, T. and Arkolakis, C. “Trade and the Topography of the Spatial Economy,” *The Quarterly Journal of Economics*, 2014, 129(3): 1085-1140.
- Lucas, R. “On the Size Distribution of Business Firms,” *Bell Journal of Economics*, 1978, 9(2): 508-523.

- Sattinger, M. “Assignment Models of the Distribution of Earnings,” *Journal of Economic Literature*, 1993, 31(2): 831-880.
- Garicano, L. and Rossi-Hansberg, E. “Organization and Inequality in a Knowledge Economy,” *The Quarterly Journal of Economics*, 2006, 121(4): 1383-1435.
- Acemoglu, D. Carvalho V.M. Ozdaglar, A. and Tahbaz-Salehi A. “The Network Origins of Aggregate Fluctuations,” *Econometrica*, 2012, 80(5): 1977-2016.
- Oberfield, E. “A Theory of Input–Output Architecture,” *Econometrica*, 2018, 86(2): 559-589.