

Here is a summary of the course, including a list of papers/topics that we will cover.

Microfoundations and Monetary Economics

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Most monetary models in macroeconomics make assumptions, such as putting money in the utility function or imposing cash-in-advance constraints, that are meant to stand in for some role of money that is not made explicit -- say, it helps overcome spatial, temporal, or informational frictions. This is problematic for several reasons that we will discuss. There are alternative models that provide microfoundations for money using search and related theories, based on explicit descriptions of specialization, meetings, information, etc. This framework can address issues such as: What types of frictions make the use of money an equilibrium or an efficient arrangement? Which assets end up serving as media of exchange? How do different monetary regimes compare -- e.g. one currency versus many, fiat versus commodity money, and so on?

These lectures will provide an overview of the search-based approach and discuss some of the most recent efforts to take these models to the data and use them for policy analysis. Much of the presentation will revolve around the model in Lagos and Wright (2005, JPE) that combines decentralized trade, as in earlier search theory, with periodic access to centralized markets. Under certain assumptions, this model implies that all agents in the centralized market choose the same money balances, and this makes the analysis of decentralized trade relatively simple. As an example, we will analyze quantitatively the welfare cost of inflation. This illustrates that, besides being analytically tractable, the model can also be realistically calibrated or estimated. Also, the results will be very different from those found in the literature imposing money in the utility function or cash in advance. We will also discuss several of the most recent applications and extensions of the model.

Tentative Outline

Below is a list of papers that are related to the material that will be covered in this course. This list also serves as an outline of the lectures. Note that the papers highlighted with a * contain the most relevant material for the course.

Also see the lecture notes on the web page

<http://www.ssc.upenn.edu/~rwright/courses/courses.html>

for some background material on:

Bargaining Theory.
Search Models of Production and Exchange.
Search and Bargaining Models of Exchange.
The Search Theoretic Approach to Monetary Economics.

The course will be graded by one in-class “midterm exam” and one in-class “final exam,” each worth the same weight. There is a chance that we can re-negotiate and make these take-home exams.

Reading List – Outline

A. Search Foundations of the Exchange Process

A1. Peter Diamond (1982) "Aggregate Demand Management in Search Equilibrium," *Journal of Political Economy* 90, 881-894.

A2.* Nobuhiro Kiyotaki and Randall Wright (1989) "On Money as a Medium of Exchange," *Journal of Political Economy* 97, 927-954.

A3.* Nobuhiro Kiyotaki and Randall Wright (1993) "A Search Theoretic Approach to Monetary Economics," *American Economic Review* 83, 63-77.

A4. S. Rao Aiyagari and Neil Wallace (1991) "Existence of Steady States with Positive Consumption in the Kiyotaki-Wright Model," *Review of Economic Studies* 58, 901-16.

B. Bargaining, Money and Price Formation

B1. Shouyong Shi (1995) "Money and Prices: A Model of Search and Bargaining," *Journal of Economic Theory* 67, 467-496.

B2.* Alberto Trejos and Randall Wright (1995) "Search, Bargaining, Money and Prices," *Journal of Political Economy* 103, 118-141.

B3. Peter Rupert, Martin Schindler and Randall Wright (2001) "Generalized Search-Theoretic Models of Monetary Exchange," *Journal of Monetary Economics* 48, 605-22.

C. Applications

C1. S. Rao Aiyagari and Neil Wallace (1997) "Government Transactions Policy, the Medium of Exchange, and Welfare" *Journal of Economic Theory*, 74, 1-18.

C2. Kiminori Matsuyama, Nobuhiro Kiyotaki and Akihiro Matsui (1993) "Toward a Theory of International Currency," *Review of Economic Studies* 60, 283-307.

C3. Narayana Kocherlakota (1998) "Money is Memory," *Journal of Economic Theory* 81, 232-251.

C3. Neil Wallace (2001) "Whither Monetary Economics?" *International Economic Review* 42, 847-869.

D. The Modern Approach

D1.* Miguel Molico (2005) "The Distribution of Money and Prices in Search Equilibrium," *International Economic Review* 47, 701-722.

D2. Shouyong Shi (1997) "A divisible search model of fiat money," *Econometrica* 65, 75-102.

D3.* Ricardo Lagos and Randall Wright (2005) "A Unified Approach to Monetary Theory and Policy Analysis" *Journal of Political Economy* 113, 463-84.

D4. Randall Wright (2009) "A Proof of Uniqueness of Monetary Steady State," manuscript

D5. Guillaume Rocheteau and Randall Wright (2005) "Money in Search Equilibrium, in Competitive Equilibrium, and in Competitive Search Equilibrium" *Econometrica* 73, 175-202.

D6.* S. B. Aruoba, Chris Waller and Randall Wright (2004) "Money and Capital: A Quantitative Analysis " manuscript.

E. Applications of the Modern Approach

E1. Aleksander Berentsen, Gabriele Camera and Christopher Waller (2007) "Money, Credit and Banking," *Journal of Economic Theory* 135, 171-95.

E2. Irina Telyukova and Randall Wright (2008) "A Model of Money and Credit, with Application to the Credit Card Debt Puzzle" *Review of Economic Studies* 75, 629-47.

E3. Ping He, Lixin Huang and Randall Wright (2008) "Money, Banking and Monetary Policy" *Journal of Monetary Economics* 55, 1013-24.

E4. Guillaume Rocheteau, Peter Rupert and Randall Wright (2007) "Inflation and Unemployment in General Equilibrium" *Scandinavian Journal of Economics* 109, 837-55.

E5.* Aleksander Berentsen, Guido Menzio Randall Wright (2009) "Inflation and Unemployment in the Long Run," manuscript.

E6.* Lucy Qian Liu (2008) "Inflation and Unemployment," manuscript.

E7.* Lucy Qian Liu, Liang Wang, and Randall Wright (2009) "On The 'Hot Potato' Effect of Inflation," manuscript.

E8.* Alan Head, Lucy Qian Liu, Guido Menzio and Randall Wright (2009) "Sticky Prices," manuscript.

F. Finance: Money and Asset Prices

F1. Ricardo Lagos and Guillaume Rocheteau (2008) "Money and Capital as Competing Media of Exchange," *Journal of Economic Theory* 142, 247-58.

F2. A. Geromichalos, J.M. Licari, and J. Suarez-Lledo (2007) "Monetary Policy and Asset Prices," *Review of Economic Dynamics* 10, 761-79.

F3. Ricardo Lagos and Guillaume Rocheteau (2009) "Liquidity in Asset Markets with Search Frictions," *Econometrica* 77, 403-26.

F4 Benjamin Lester, Andrew Postlewaite and Randall Wright (2009) "Information, Liquidity, Asset Prices and Monetary Policy," manuscript.