Macro Models with Exogenous and Endogenous Incomplete Markets
EUI, Spring 2011

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Time and Location: Tuesday-Thursday 11.00-13.00; Room: VSP1.

Office Hours: Thursday 14.00-16.00 or on sign-up sheet.

Teaching Assistants: Moritz Helm and Kjersti Torstensen.

Course website: There will be a course website on Moodle..

Course Overview: This course introduces several classes of models where agents face idiosyncratic shocks in a dynamic (general equilibrium) context. We will mostly concentrate on models where these shocks cannot be fully insured either because of the lack of (complete) insurance markets (exogenous incomplete markets) or because of some commitment and/or information frictions (endogenous incomplete markets).

The course will cover

- methodological issues such as: defining recursive stationary equilibrium, recursive formulation of dynamic contracts with limited commitment or private information/action;
- quantitative issues such as: solving dynamic equilibrium or social planning models under discrete and continuos state space using value function or policy function iterations;
- and applications such as: generating a realistic wealth distribution, asset pricing, consumer and sovereign default, international risk sharing, consumption and earning inequality, optimal labor contracts, optimal unemployment and disability insurance and optimal taxation.

Grading: There will be 4 assignments throughout the term and either a final exam or a research proposal, depending on the number of students. The problem sets require the basic knowledge of Matlab (or more sophisticated programming languages such as Fortran, C or C++). The determination of the final grade will be discussed ate the first class.

Readings: I will provide lecture notes extensively. A preliminary reading list is provided below.

Preliminary Reading List (we will not cover all these papers and we may not follow this order)

Exogenous Incomplete Markets

- Ábrahám, Á. and E. Cárceles-Poveda (2009), "Endogenous Trading Constraints with Incomplete Asset markets", forthcoming in the *Journal of Economic Theory.*
- D. R. Aiyagari, Uninsured Idiosyncratic Risk and Aggregate Saving, *Quarterly Journal of Economics* 109(3), (1994), 659-684.
- Aiyagari, D. R. (1995). "Optimal Capital Income Taxation with Incomplete Markets, Borrowing Constraints and Constant Discounting ", *The Journal of Political Economy* 103(6), pp. 1158-75.
- Castaneda A., Diaz Gimenez, J. and J. V. Rios-Rull (2003). "Accounting for earnings and wealth inequality", *Journal of Political Economy,* 111(4), pp. 818-857.
- C. Chamley (1986), "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives", *Econometrica* 54(3), 607-622.
- Chatterjee, S., Corbae D., Nakajima, M. and J. V. Rios-Rull (2007). "A Quantitative Theory of Unsecured Consumer Credit with Risk of Default", *Econometrica,* 75(6), pp. 1525-1590.

- D. Domeij, J. Heathcote, (2004), "On the Distributional Effects of Reducing Capital Taxes", *International Economic Review*, 45(2), 523-554.
- M. Huggett, (1993) "The Risk Free Rate in Heterogeneous-Agent, Incomplete-Agent Economies", *Journal of Economic Dynamics and Control* 17(5-6), 953-969.
- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Chapters 16 and 17.

Recursive Contracts Methodology

- Abreu, D., D. Pearce and E. Stachetti (1990): "Towards a Theory of Discounted Repeated Games with Imperfect Monitoring", *Econometrica*, 58(5):1041-1064.
- Marcet, A. and R. Marimon (1998): "Recursive Contracts", mimeo., Universitat Pompeu Fabra.
- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Part 5.

Optimal Risk Sharing without Commitment

- Alvarez, F. and U. Jermann, (2000), "Efficiency, Equilibrium, and Asset Pricing with Risk of Default", *Econometrica*, 68(4), pp. 775-797.
- Alvarez, F. and U. Jermann, (2001), "Quantitative Asset Pricing Implications of Endogenous Solvency Constraints", *Review of Financial Studies*, 14(4), pp. 1117-1151.
- Kehoe, P. and F. Perri (2002): "International Business Cycles with Endogenous Incomplete Markets", *Econometrica*, 70(3): 907-28.
- Kehoe, T. and D. K. Levine (2001): "Liquidity Constrained Markets versus Debt Constrained Markets", *Econometrica*, 69(3): 575-598.
- Kocherlakota, N. (1996): "Implications of Efficient Risk Sharing without Commitment", *Reviev of Economic Studies*, 63(4): 595-609.
- Krueger, D. and F. Perri (2005): "Does Income Inequality Lead to Consumption Inequality? Evidence and Theory", *Review of Economic Studies*, Vol. 73(1), pp. 163-193.
- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Chapters 19, 20.
- Thomas, J. and T, Worrall (1988): "Self-Inforcing Wage Contracts", *Reviev of Economic Studies*, 55(3): 541-54.

Optimal Policies with Hidden Information

- Atkeson A. and R. Lucas (1992): "On Efficient Distribution with Private Information", *Reviev of Economic Studies*, 59(3): 427-453.
- Golosov, M., N. Kocherlakota and A. Tsyvinski (2004): "Optimal Indirect and Capital Taxation", *Review of Economic Studies,* 70(3): 569-587.
- Kocherlakota, Narayana R. (2005), "Zero Expected Wealth Taxes: A Mirrlees Approach to Dynamic Optimal Taxation", *Econometrica,* 73: 1587-1605.
- Kocherlakota, Narayana R. (2009), "The New Dynamic Public Finance", mimeo., University of Minnesota.

- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Chapters 19.
- Phelan, C. and R.M. Townsend (1991), "Computing Multi-Period, Information-Constrained Optima," *Review of Economic Studies*, 58: 853-881.
- Thomas, J. and T, Worrall (1990): "Income Fluctuations and Asymmetric Information", *Journal of Economic Theory*, 51(2): 367-90.

Optimal Policies with Hidden Effort

- Atkeson A. (1991): "International Lending with moral Hazard and Risk of Repudation", *Econometrica*, 59(4): 1069-1089.
- Hopenhayn, H. and J.P. Nicolini (1997), "Optimal Unemployment Insurance," *Journal of Political Economy,* 105(2): 412-438.
- Pavoni, N. (2006): "On Optimal Unemployment Compensation," *Journal of Monetary Economics*, 2007, 54: 1612-1630.
- Pavoni, N. and Violante G. (2006): "Optimal Welfare-to-Work Programs," *Review of Economic Studies*, 2007, 74, January: 283-318.
- Rogerson, W. (1985a), "Repeated Moral Hazard," *Econometrica*, 53: 69-76.

Hidden Borrowing and Lending and Hidden Information

- Ábrahám, Á. and N. Pavoni (2008): "Efficient Allocations with Moral Hazard and Hidden Borrowing and Lending: A Recursive Formulation", *Review of Economic Dynamics*, 11: 781-803..
- Ábrahám, Á., Sebastian Koehne, and N. Pavoni (2010) "On The First-Order Approach in Principal-Agent Models with Hidden Borrowing and Lending," mimeo., EUI and UCL.
- Cole, H. L. and N. R. Kocherlakota (2001): "Efficient Allocations with Hidden Income and Hidden Storage", *Review of Economic Studies*, 68(3): 523-542.
- Kocherlakota, N. R. (2004), "Figuring out the impact of hidden savings on optimal unemployment insurance", *Review of Economic Dynamics,* 7(3): 541-554.
- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Chapter 19.

Numerical methodology

- Judd, K.L. (1998), "Numerical Methods in Economics", *MIT Press.*
- Marimon, R. and A.J. Scott, eds. (1998): "Computational Methods for the Study of Dynamic Economies", *Oxford University Press*, Chapters 5, 6 and 11.