Macro Models with Exogenous and Endogenous Incomplete Markets
EUI, Spring 2016

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Time and Location: Monday-Wednesday 11.00-13.00; Room: VSP1.

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

Teaching Assistants: Lukas Mayr and Vinzenz Ziesemer.

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

Course Overview: This course introduces several classes of models and applications 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) and/or because of lack of commitment type of frictions (endogenous incomplete markets).

The course will cover

- methodological issues such as: defining recursive stationary equilibrium, recursive formulation of dynamic contracts with limited commitment;
- 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, firm and sovereign default, international risk sharing, consumption and earning inequality, optimal labor contracts, hidden storage.

Grading: There will be 3 assignments throughout the term and a research project. The problem sets will contain analytical, numerical and open-ended questions. For the numerical parts, the basic knowledge of Matlab (or more sophisticated programming languages such as Fortran, C or C++) will be assumed. The research project will be built upon the problem sets. The problems sets will contribute 60% to the final grade while the research project will contribute 40%.

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

- D. R. Aiyagari, Uninsured Idiosyncratic Risk and Aggregate Saving, *Quarterly Journal of Economics* 109(3), (1994), 659-684.
- 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.
- 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.

Defaultable Debt

- Ábrahám, Á. and E. Cárceles-Poveda (2010), "Endogenous Trading Constraints with Incomplete Asset Markets", *Journal of Economic Theory,* 145: 974-1004.
- Arellano, Cristina. 2008. "Default Risk and Income Fluctuations in Emerging Economies." *American Economic Review*, 98(3): 690–712.
- 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.
- Cooley, T. and V.Quadrini: "Financial Markets and Firm Dynamics", American Economic Review, 91, December 2001.

Recursive Contracts

- 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 (2011): "Recursive Contracts", European University Institute Working Paper.
- Ljungqvist, L. and T. J. Sargent (2004): "Recursive Macroeconomic Theory", *The MIT Press*, 2nd Edition, Part 5.

Optimal Risk Sharing without Commitment

- Ábrahám, Á. and S. Laczó: Efficient Risk Sharing with Limited Comitment and Storage, mimeo, (2015).
- 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.er 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.