

Economics 7320, Monetary Economics

Cornell University

Fall 2010

Professor Karl Shell

Prerequisite: Economics 6140 or the consent of the instructor. Economics 7310 is not required, but Economics 7310 veterans are encouraged.

Meetings: Once weekly for 2 to 3 hours. We will usually meet on Fridays from 2:15 P.M. to 5:00 P.M. in Uris Hall 420. There will be exceptional meetings.

Subject: The focus will be on Sunspot Equilibrium as a source of Excess Economic Volatility. Faculty participation is encouraged. This is an important course for students in the macro program.

Requirements: Students will be expected to attend and participate in all lectures. There will be faculty presentations and student presentations. Each student will be required to present (at least) one paper.

Office: Professor Shell's office is in 402 Uris Hall. His formal office hour is Thursdays 4pm to 5pm, but he urges 7320 class participants to visit him at any time with or without appointments. Appointments can be made through Yu Zhang <yz235@cornell.edu>.

Cornell/Penn State Macro Workshop: Econ 7320 students are urged to participate in the CU/PSU macro workshop which meets semi-annually. This fall the meeting will be at Cornell University all day Saturday, October 2 and until late lunch on Sunday, October 3. The workshop sessions will be held in Fleming Lecture Room - 226 Weill Hall, Cornell University.

The scheduled speakers are:

Saroj Bhattarai (Pennsylvania State University),

Alexei Deviatov & Neil Wallace (Pennsylvania State University),

Huberto Ennis (Federal Reserve Bank of Richmond),

Chao Gu (University of Missouri) & Randall Wright (Wisconsin Business School),

Aditya Goenka (Cornell University & National University of Singapore),

Pidong Huang and Yoske Igarashi (Pennsylvania State University),

Boyan Jovanovic (New York University),

Theodore Papageorgiou (Pennsylvania State University),

Assaf Razin (Cornell University),

Larry Selden (Columbia Business School)

Reading List: The reading list is indicative. Not all papers will be covered in detail. Some papers will be added during the semester.

Background Reading

W.S. Jevons, "[Commercial Crises and Sun-spots](#)," *Nature*, xix, November 14, 1878, 33-37.

W.S. Jevons, "[Sun-Spots and the Commercial Crisis](#)", *Nature*, xix, April 24, 1879, 588-590.

W.S. Jevons, "[The Solar-Commercial Cycle](#)", *Nature*, xxvi, July 6, 1882, 226-228.

Karl Shell, "[Sunspot Equilibrium](#)," in *The New Palgrave: A Dictionary of Economics*, Second Edition (L. Blume and S. Durlauf, eds.), Macmillan, 2008.

Karl Shell, "[Sunspot Equilibrium](#)," in *The New Palgrave: A Dictionary of Economics* (J. Eatwell, M. Milgate, and P. Newman, eds.), Vol. 4, New York: Macmillan, 1987, 549-551.

Karl Shell and Bruce Smith, "[Sunspot Equilibrium](#)," in *The New Palgrave Dictionary of Money and Finance* (J. Eatwell, M. Milgate, and P. Newman, eds.), Vol. 3, London: Macmillan, 601-605.

Finite Horizon models & Limited Market Participation

Gaetano Antinolfi and Todd Keister, "Options and Sunspots in a Simple Monetary Economy," *Economic Theory*, 11(2), 1998, 295-315.

Yves Balasko, "Extrinsic Uncertainty Revisited," *Journal of Economic Theory*, Vol. 31(2), December 1983, 203-210.

Yves Balasko, David Cass and Karl Shell (RES) "Market Participation and Sunspot Equilibria" *The Review of Economic Studies*, Vol. 62(3), No. 212, July 1995, 491-512. Reprinted in *Equilibrium* (D. Walker, ed.), *Critical Ideas in Economics* Volume 3, London: Edward Elgar, 2000, 591-615.

Joydeep Bhattacharya, Mark G. Guzman and Karl Shell, "Price Level Volatility: A Simple Model of Money Taxes and Sunspots," *Journal of Economic Theory*, Vol 81(2), 1988, 401-430.

David Cass and Karl Shell, "Do Sunspots Matter?" *Journal of Political Economy*, Vol. 91(2), April 1983, 193-227.

Aditya Goenka, "Fiscal Rules and Extrinsic Uncertainty," *Economic Theory*, 4(3), 1994, 401-416.

Aditya Goenka, "Rationing and Sunspot Equilibria", *Journal of Economic Theory*, 64(2), 1994, 424-442.

Aditya Goenka and Stefano Matta, "Manipulation of Endowments and Sunspot Equilibria," *Economic Theory*, 36(2), 2008, 267-282.

Aditya Goenka and Karl Shell, "When Sunspots Don't Matter," *Economic Theory*, Vol. 9(1), January 1997, 169-178.

Overlapping Generations Models

Costas Azariadis, "Self-Fulfilling Prophecies," *Journal of Economic Theory*, Vol. 25(3), December 1981, 380-396.

Costas Azariadis and Roger Guesnerie, "Sunspots and Cycles", *Review of Economic Studies*, Vol. 53(5), October 1986, 725-738.

David Cass and Karl Shell, "Sunspot Equilibrium in an Overlapping-Generations Economy with an Idealized Contingent-Commodities Market," Part 1, Chapter 1 in *Economic Complexity: Chaos, Sunspots, Bubbles, and Nonlinearity* (W. Barnett, J. Geweke, and K. Shell, eds.), New York: Cambridge University Press, 1989, 3-20.

Subir Chattopadhyay, "Pareto Optimal Improvements for Sunspots: The Golden Rule as a Target for Stabilization," *Economic Theory*, 8(1), 123-135.

Subir Chattopadhyay and Thomas Muench, "Sunspots and Cycles Reconsidered", *Economic Letters*, 63(1), 1999, 67-75.

Pierre Andre Chiappori and Roger Guesnerie, "Sunspot Equilibria in Sequential Market Models," in Werner Hildenbrand and Hugo Sonnenschein (Eds.) *Handbook of Mathematical Economics, Vol IV*, Amsterdam: North Holland, 1991.

Roger E.A. Farmer and Michael Woodford, "Self-Fulfilling Prophecies and the Business Cycle," *Macroeconomic Dynamics*, 1(4), 1997, 740-769.

Rodolfo Manuelli and James Peck, "Sunspot-like Effects of Random Endowments," *Journal of Economic Dynamics and Control*, 16(2), 1992, 193-206.

James Peck, "On the Existence of Sunspot Equilibria in an Overlapping Generations Model," *Journal of Economic Theory*, Vol. 44(1), February 1988, 19-42.

Karl Shell, "Monnaie et Allocation Intertemporelle," [title and abstract in French, text in English] mimeo, Séminaire d'Econométrie Roy-Malinvaut, Centre National de la Recherche Scientifique, Paris, November 21, 1977. (Forthcoming in *Macroeconomic Dynamics*.)

Stephen E. Spear "Sufficient Conditions for the Existence of Sunspot Equilibria," *Journal of Economic Theory*, 34(2), 1984, 360-370.

Stephen E. Spear, "Rational Expectations in the Overlapping Generations Model," *Journal of Economic Theory*, 35(2), 1985, 251-275.

Stephen E. Spear, "Are Sunspots Necessary?" *Journal of Political Economy*, 97(4), 1989, 965-973.

Stephen E. Spear and Sanjay Srivastava, "Markov Rational Expectations Equilibria in an Overlapping Generations Model," *Journal of Economic Theory*, 38(1), (1986) 35-62.

Stephen E. Spear, Sanjay Srivastava and Michael Woodford (1990), "Indeterminacy of Stationary Equilibrium in Stochastic Overlapping Generations", *Journal of Economic Theory*, 50(2), 1990, 265-284.

Michael Woodford, "Stationary Sunspot Equilibria: The Case of Small Fluctuations around a Deterministic Steady State," 1986, unpublished.

Michael Woodford, "Stationary Sunspot Equilibria in a Finance Constrained Economy", *Journal of Economic Theory*, 40(1), 1986, 128-137.

Strategic Models and Asymmetric Information

Robert Aumann, "Correlated Equilibrium as an Expression of Bayesian Rationality", *Econometrica*, 55(1), 1987, 1-18

Sonia Di Giannatale, "Sunspot Like Fluctuations in an Overlapping Generations Economy with Strategic Interactions," *Economic Theory*, 35(1), 2008, 191-2008.

Francoise Forges and James Peck, "Correlated Equilibrium and Sunspot Equilibrium", *Economic Theory*, 5(1), 1995, 33-50.

Eric Maskin and Jean Tirole, "Correlated Equilibria and Sunspots: A Note", *Journal of Economic Theory*, 43(2), 1987, 364-373.

James Peck and Karl Shell, "Market Uncertainty: Correlated and Sunspot Equilibria in Imperfectly Competitive Economies," *The Review of Economic Studies*, Vol. 58(5), October 1991, 1011-1019.

Indivisibilities

Rod Garratt, "Decentralizing Lottery Allocations in Markets with Indivisible Commodities", *Economic Theory*, 5, 1995, 295-313

Rod Garratt and Todd Keister, "A Characterization of Robust Sunspot Equilibria," *Journal of Economic Theory*, 120(1), 2002, 136-144.

Rod Garratt, Todd Keister, Cheng-Zhon Qin, and Karl Shell, "Equilibrium Prices when the Sunspot Variable is Continuous," *Journal of Economic Theory*, Vol. 107(1), November 2002, 11-38. doi:10.1006/jeth.1999.2634

Rod Garratt, Todd Keister, and Karl Shell, "Comparing Sunspot Equilibrium and Lottery Equilibrium Allocations: The Finite Case," *Incomplete Markets Workshop*, SUNY Stony Brook, July 2001.

Aditya Goenka and Karl Shell, "Robustness of Sunspot Equilibria," *Economic Theory*, Vol. 10(1), July 1997, 79-98.

Timothy J. Kehoe, David K. Levine, Edward C. Prescott, "Lotteries, Sunspots, and Incentive Constraints," *Journal of Economic Theory*, Vol. 107(1), November 2002, 39-69. doi:10.1006/jeth.2001.2792.

Edward Prescott and Robert Townsend, "Pareto Optima and Competitive Equilibria with Adverse Selection and Moral Hazard," *Econometrica*, Vol. 52(1), January 1984, 21-45.

Edward Prescott and Robert Townsend, "General Competitive Analysis in an Economy with Private Information," *International Economic Review*, Vol. 25(1), February 1984, 1-20.

Karl Shell and Randall Wright, "Indivisibilities, Lotteries and Sunspot Equilibria," *Economic Theory*, Vol. 3(1), January 1993, 1-17.

Incomplete Markets

David Cass, "Sunspot and Incomplete Financial Markets: The Leading Example," in G. Feiwel (Ed.) *The Economics of Imperfect Competition and Unemployment: Joan Robinson and Beyond*, 1989, London: Macmillan.

David Cass, "Sunspots and Incomplete Financial Markets: The General Case," *Economic Theory*, 2, 1982, 341-358.

David Cass, R.C. Green, and Stephen E. Spear, "Stationary Equilibria with Incomplete Markets and Overlapping Generations," *International Economic Review*, 33, 1992, 495-512.

Aditya Goenka and Christophe Prechac, "Stabilizing Sunspots," *Journal of Mathematical Economics*, 42(4-5), 2006, 544-555.

Piero Gottardi and Atsushi Kajii, "The Structure of Sunspot Equilibria: The Role of Multiplicity," *Review of Economic Studies*, 66(3), 1999, 713-732.

Thorsten Hens and Beate Pilgrim, "Sunspot Equilibria and the Transfer Paradox", *Economic Theory*, 24(3), 2004, 583-602.

Andreu Mas-Collel, "Three Remarks on Sunspots and Asset Redundancy," in P. Dasgupta, D. Gale, O. Hart and E. Maskin (Eds.) *Economic Analysis of Markets and Games: Essays in Honor of Frank Hahn*, Cambridge, MA: MIT Press.

Atsushi Kajii, "Welfare Gains and Losses in Sunspot Equilibria," *Japanese Economic Review*, 58(3), 2007, 329-344.

Atsushi Kajii, "Sunspot Equilibria in a Production Economy: Do Rational Animal Spirits Cause Overproduction?" *Japanese Economic Review*, 60(1), 2009, 35-54.

Paolo Siconolfi, "Sunspot Equilibria and Incomplete Financial Markets", *Journal of Mathematical Economics*, 20(3), 1991, 327-339.

Tito Pietra, "Sunspots, Indeterminacy and Pareto Inefficiency in Economies with Incomplete Markets," *Economic Theory*, 24(3), 2004, 687-699.

Growth, Externalities, "Indeterminacy" and Calibration

Jess Benhabib and Roger E.A. Farmer, "Indeterminacy and Increasing Returns," *Journal of Economic Theory*, 63(1), 1994.

Jess Benhabib and Roger E.A. Farmer, "Indeterminacy and Sector-Specific Externalities," *Journal of Monetary Economics*, 37(3), 1996, 421-443.

Jess Benhabib and Roger E.A. Farmer, "Indeterminacy and Sunspots," in John Taylor and Michael Woodford (Eds.) *Handbook of Macroeconomics, Vol I Part I*, (1999), 387-448.

Jess Benhabib and Yi Wen, "Indeterminacy, Aggregate Demand and the Business Cycle," *Journal of Monetary Economics*, 51(3), 2004, 503-530.

Rosalind Bennett and Roger E.A. Farmer, "Indeterminacy and Non-Separable Utility," *Journal of Economic Theory*, 93(1), 2000, 118-143.

Roger E.A. Farmer and Jang-Ting Guo, "Real Business Cycles and the Animal Spirits Hypothesis," *Journal of Economic Theory*, 63(1), 1994.

Sharon Harrison and Mark Weder, "Did Sunspot Forces Cause the Great Depression?" *Journal of Monetary Economics*, 53, 2006, 1527-1539.

J. Rotemberg and Michael Woodford, "Real Business-Cycles Models and the Forecastable Movements in Output, Hours, and Consumption," *American Economic Review*, 86, 1996, 71-89.

Gerhard Sorger, "On the Structure of Ramsey Equilibrium: Cycles, Indeterminacy and Sunspots," *Economic Theory*, 4(5), 1994, 745-764.

Stephen E. Spear, "Growth, Externalities and Sunspots," *Journal of Economic Theory*, 54(1), 1991, 215-223.

Yi Wen, "Understanding Self-Fulfilling Rational Expectations Equilibria in a Real Business Cycles Model," *Journal of Economic Dynamics Control*, 25(8), 2001, 1221-1240.

Yi Wen, "Capacity Utilization under Increasing Returns to Scale," *Journal of Economic Theory*, 81, 1998, 7-36.

International Finance models

Huberto Ennis and Todd Keister, "Expectations and Contagion in Self-Fulfilling Currency Attacks," *International Economic Review*, 2009.
DOI: 10.1111/j.1468-2354.2009.00556.x

Aditya Goenka and Melisso Boschi, "Relative risk aversion and the transmission of financial crises," Working Paper, 2010.

Olivier Jeanne, "Are currency crises self-fulfilling? A test" *Journal of International Economics*, 43(3-4), 1997, 263-286.

Rodolfo Manuelli and James Peck, "Exchange Rate Volatility in an Equilibrium Asset Pricing Model," *International Economic Review*, 31(3), 1990, 559-574.

Paul Masson, "Contagion: Macroeconomic Models with Multiple equilibria," *Journal of International Money and Finance*, 18(4), 1999, 587-602.

Bank Runs

Huberto Ennis and Todd Keister, "Banking Panics and Policy Responses," *Journal of Monetary Economics*, 57(4), 2010, 404-419.

Huberto Ennis and Todd Keister, "[Bank Runs and Institutions: The Perils of Intervention](#)," *American Economic Review*, 99, 2009, 1588-1607.

Huberto Ennis and Todd Keister, "[Run Equilibria in the Green-Lin Model of Financial Intermediation](#)," *Journal of Economic Theory*, 144, 2009, 1996-2020.

Chao Gu, "[Herding and Bank Runs](#)," University of Missouri Working Paper, 2007.

Chao Gu, "[Noisy Sunspots and Bank Runs](#)," *Macroeconomic Dynamics*, Available on CJO 10 Jun 2010 ([?](#)) doi:10.1017/S136510051000043X

James Peck and Karl Shell, "[Equilibrium Bank Runs](#)," *Journal of Political Economy*, 111(1), 2003, 103-123.

James Peck and Karl Shell, "[Could Making Banks Hold Only Liquid Assets Induce Bank Runs?](#)" *Journal of Monetary Economics*, 57, 2010, 420-427.

Learning

Julio Davila, Piero Gottardi and Atsushi Kajii, "[Local Sunspots Reconsidered](#)", *Economic Theory*, 31(2), 2007, 401-425.

Jean Michel Grandmont, "[Expectations Formation and the Stability of Large Socioeconomic Systems](#)," *Econometrica*, 66(4), 1998, 741-781.

Michael Woodford "[Learning to Believe in Sunspots](#)," *Econometrica*, 58(2), 1990, 277-307.

Monetary Policy

Bruce D. Smith, "[Legal Restrictions, "Sunspot," and Peel's Bank Act: The Real Bills Doctrine versus the Quantity Theory Reconsidered](#)," *Journal of Political Economy*, 96(1), 1989, -19.

Bruce D. Smith, "[Legal Restrictions, "Sunspots," and Cycles](#)," *Journal of Economic Theory*, 47(2), 1989, 369-392.

Bruce D. Smith, "Interest on Reserves and Sunspot Equilibria: Friedman's Proposal Reconsidered," *Review of Economic Studies*, 58(1), 1991, 93-105.

Bruce D. Smith, "Efficiency and Determinacy of Equilibrium under Inflation Targeting," *Economic Theory*, 4(3), 1994, 327-344.

Michael Woodford (1994) "Monetary Policy and Price Level Determinacy in a Cash-in-Advance Economy," *Economic Theory*, 4(3), 1994, 345-380.

Search Models

Guillaume Rocheteau, Peter Rupert, Karl Shell and Randy Wright, "General Equilibrium with Nonconvexities and Money," *Journal of Economic Theory*, 142(1), 2008, 294-317.

Randy Wright, "A Note on Sunspots in Search Models of Fiat Money," *Journal of Economic Theory*, 64(1), 1994, 234-241.