

# Reading List – ZICE 2013

January 9, 2013

SECOND DRAFT: INCOMPLETE

## Numerical Methods: General

- (1) JUDD, K.L. (1998): *Numerical Methods in Economics*. Cambridge, MA: MIT Press.

This textbook provides a broad introduction to numerical methods in economics. It should be part of your library.

## Optimization

- (2) NOCEDAL, J., AND S.J. WRIGHT (2006): *Numerical Optimization*. New York: Springer.

This textbook provides a comprehensive treatment of numerical optimization methods. It should be part of your library.

- (3) SCHMEDDERS, K. (2008): “Numerical Optimization Methods in Economics, in *The New Palgrave: A Dictionary of Economics*.

This Palgrave dictionary entry provides a brief introduction to numerical optimization methods in economics. It is a good starting point to obtain a first impression of numerical optimization.

## Dynamic Programming

- (4) CAI, Y., AND K.L. JUDD (2012): “Stable and efficient Computational Methods for Dynamic Programming,” working paper.

- (5) CAI, Y., AND K.L. JUDD (2012): “Dynamic programming with shape-preserving rational spline Hermite interpolation,” *Economics Letters*, 117, 161-164.

- (6) CAI, Y., AND K.L. JUDD (2012): “Shape-preserving dynamic programming,” forthcoming in *Mathematical Methods of Operations Research*.

- (7) CAI, Y., AND K.L. JUDD (2012): “Dynamic Programming with Hermite Approximation,” working paper.

- (8) CAI, Y., JUDD, K.L., AND T.S. LONTZEK (2012): “The Social Cost of Stochastic and Irreversible Climate Change,” working paper.

- (9) CAI, Y., JUDD, K.L., G. THAIN AND A.J. WRIGHT (2012): “Solving Dynamic Programming Problems on a Computational Grid,” working paper.
- (10) CAI, Y., JUDD, K.L. AND R. XU (2012): “Numerical Solution of Dynamic Portfolio Optimization with Transaction Costs,” working paper.

## Constrained Optimization and Estimation

- (11) DUBÉ, J.-P., FOX, J. T., AND C.-L. SU (2012): “Improving the Numerical Performance of Static and Dynamic Aggregate Discrete Choice Random Coefficients Demand Estimation,” *Econometrica*, 80 (5), 2231–2267.
- (12) DUBÉ, J.-P., FOX, J. T., AND C.-L. SU (2012): “Supplement to Improving the Numerical Performance of Static and Dynamic Aggregate Discrete Choice Random Coefficients Demand Estimation,” *Econometrica Supplementary Material*.
- (13) EGESDAL, M., LAI, Z., AND C.-L. SU (2012): “Estimating Dynamic Discrete-Choice Games of Incomplete Information,” working paper.

The first two authors of this paper are graduates of ICE 2012.

- (14) SU, C.-L. (2012): “Estimating Discrete-Choice Games of Incomplete Information: A Simple Static Example,” working paper, *The University of Chicago, Booth School of Business*.
- (15) SU C.-L., AND K.J. JUDD,(2012): “Constrained Optimization Approaches to Estimation of Structural Models,” *Econometrica*, 80 (5), 2213–2230.

This paper is the perhaps most influential computational work in economics during the last two decades. Do we need to say more?

## Repeated and Dynamic Games

- (16) ABREU D., PEARCE D. G., AND E. STACCHETTI (1990): “Toward a Theory of Discounted Repeated Games with Imperfect Monitoring,” *Econometrica*, 58 (5), 1041–1063.
- (17) ABREU D., PEARCE D. G., AND E. STACCHETTI (1986): “Optimal Cartel Equilibria with Imperfect Monitoring,” *Journal of Economic Theory*, 39 (1), 251–269.
- (18) JUDD K., YELTEKIN S., AND J. CONKLIN (2003): “Computing Supergame Equilibria,” *Econometrica*, 71 (4), 1239–1254.

A beautiful piece of work.

## Heterogeneous Agent Models

- (19) JUDD, K.J., MALIAR, L., AND S. MALIAR (2011): “Numerically stable and accurate stochastic simulation approaches for solving dynamic economic models,” *Quantitative Economics*, 2, 173-210.

- (20) JUDD, K.J., MALIAR, L., AND S. MALIAR (2011): “Supplement to Numerically stable and accurate stochastic simulation approaches for solving dynamic economic models: Appendices,” *Quantitative Economics*, 2 (2), 173-210.
- (21) JUDD, K.J., MALIAR, L., AND S. MALIAR (2011): “How to Precompute Integrals in Dynamic Stochastic Models,” working paper.
- (22) JUDD, K.J., MALIAR, L., AND S. MALIAR (2011): “One-Node Quadrature Beats Monte Carlo: A Generalized Stochastic Simulation Algorithm,” *NBER Working Paper Series*.
- (23) JUDD, K.J., MALIAR, L., AND S. MALIAR (2012): “Merging Simulation and Projection Approaches to Solve High-Dimensional Problems,” working paper.
- (24) MALIAR, L., MALIAR, L., AND K.J. JUDD (2011): “How to solve dynamic stochastic models computing expectations just once,” working paper.
- (25) MERTENS, T.M., AND K.J. JUDD (2012): “Supplement to Equilibrium Existence and Approximation for Incomplete Market Models with Substantial Heterogeneity,” working paper.

## **Income Taxation**

- (26) JUDD, K.J. AND C.L. SU (2006): “Optimal Income Taxation with Multidimensional Taxpayer Types,” working paper.

## **Polynomial Methods**

- (27) JUDD, K.J., RENNER, P., AND K. SCHMEDDERS (2012): “Finding all pure-strategy equilibria in games with continuous strategies,” *Quantitative Economics*, 3, 289–331.

This paper provides an introduction to solving systems of polynomial equations using all-solution homotopy methods.

- (28) KUBLER, F., AND K. SCHMEDDERS (2010): “Tackling Multiplicity of Equilibria with Gröbner Bases,” *Operations Research*, 58 (4), 1037–1050.

This paper provides an introduction to solving systems of polynomial equations using Gröbner bases.