Recursive Methods In Economic Dynamics

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Exercises in Dynamic Macroeconomic Theory
Recursive Macroeconomic Theory, fourth edition
Computational Methods and Applications

SANAA KIM

An Introduction to Dynamic Macroeconomic Models

Harvard University Press

The Theory of Industrial Organization is the first primary text to treat the new industrial organization at the advanced-undergraduate and graduate level. Rigorously analytical and filled with exercises coded to indicate level of difficulty, it provides a unified and modern treatment of the field with accessible models that are simplified to highlight robust economic ideas while working at an intuitive level. To aid students at different levels, each chapter is divided into a main text and supplementary section containing more advanced material. Each chapter opens with elementary models and builds on this base to incorporate current research in a coherent synthesis. Tirole begins with a background discussion of the theory of the firm. In Part I he develops the modern theory of monopoly, addressing single product and multi product pricing, static and intertemporal price discrimination, quality choice, reputation, and vertical restraints. In Part II, Tirole takes up strategic interaction between firms, starting with a novel treatment of the Bertrand-Cournot interdependent pricing problem. He studies how capacity constraints, repeated interaction, product positioning, advertising, and asymmetric information affect competition or tacit collusion. He then develops topics having to do with long term competition,

including barriers to entry, contestability, exit, and research and development. He concludes with a "game theory user's manual" and a section of review exercises. Important Notice: The digital edition of this book is missing some of the images found in the physical edition.

Business Cycle Dynamics MIT Press

A textbook for a first-year PhD course in mathematics for economists and a reference for graduate students in economics.

Handbook on Optimal Growth 1 Princeton University Press

An integrated approach to the empirical application of dynamic optimization programming models, for students and researchers.

This book is an effective, concise text for students and researchers that combines the tools of dynamic programming with numerical techniques and simulation-based econometric methods. Doing so, it bridges the traditional gap between theoretical and empirical research and offers an integrated framework for studying applied problems in macroeconomics and microeconomics. In part I the authors first review the formal theory of dynamic optimization; they then present the numerical tools and econometric techniques necessary to evaluate the theoretical models. In language accessible to a reader with a limited background in econometrics, they explain most of the methods used in applied dynamic research today, from the estimation of probability in a coin flip to a complicated nonlinear stochastic structural model. These econometric techniques provide the final link between the dynamic programming problem and data. Part II is devoted to the application of dynamic programming to specific areas of applied economics, including the study of business cycles, consumption, and investment behavior. In each instance the authors present the specific optimization problem as a dynamic programming problem, characterize the optimal policy functions, estimate the parameters, and use models for policy evaluation. The original contribution of Dynamic Economics: Quantitative Methods and Applications lies in the integrated approach to the empirical application of dynamic optimization programming models. This integration shows that empirical applications actually complement the underlying theory of optimization, while dynamic programming problems provide needed structure for estimation and policy evaluation.

Income and Nutritional Effects of the Commercialization of Agriculture in Southwestern Kenya Harvard University Press

Provides a rigorous treatment of some of the basic tools of economic modeling and reasoning, along with an assessment of the strengths and weaknesses of these tools.

Dynamic Economics Cambridge University Press

A unified, comprehensive, and up-to-date introduction to the analytical and numerical tools for solving dynamic economic problems. This book offers a unified, comprehensive, and up-to-date treatment of analytical and numerical tools for solving dynamic economic problems. The focus is on introducing recursive methods—an important part of every economist's set of tools—and readers will learn to apply recursive methods to a variety of dynamic economic problems. The book is notable for its combination of theoretical foundations and numerical methods. Each topic is first described in theoretical terms, with explicit definitions and rigorous proofs; numerical methods and computer codes to implement these methods follow. Drawing on the latest

research, the book covers such cutting-edge topics as asset price bubbles, recursive utility, robust control, policy analysis in dynamic New Keynesian models with the zero lower bound on interest rates, and Bayesian estimation of dynamic stochastic general equilibrium (DSGE) models. The book first introduces the theory of dynamical systems and numerical methods for solving dynamical systems, and then discusses the theory and applications of dynamic optimization. The book goes on to treat equilibrium analysis, covering a variety of core macroeconomic models, and such additional topics as recursive utility (increasingly used in finance and macroeconomics), dynamic games, and recursive contracts. The book introduces Dynare, a widely used software platform for handling a range of economic models; readers will learn to use Dynare for numerically solving DSGE models and performing Bayesian estimation of DSGE models. Mathematical appendixes present all the necessary mathematical concepts and results. Matlab codes used to solve examples are indexed and downloadable from the book's website. A solutions manual for students is available for sale from the MIT Press; a downloadable instructor's manual is available to qualified instructors.

Essential Microeconomics Harvard University Press

This advanced text introduces the principles of noncooperative game theory in a direct and uncomplicated style that will acquaint students with the broad spectrum of the field while highlighting and explaining what they need to know at any given point. This advanced text introduces the principles of noncooperative game theory—including strategic form games, Nash equilibria, subgame perfection, repeated games, and games of incomplete information—in a direct and uncomplicated style that will acquaint students with the broad spectrum of the field while highlighting and explaining what they need to know at any given point. The analytic material is accompanied by many applications, examples, and exercises. The theory of noncooperative games studies the behavior of agents in any situation where each agent's optimal choice may depend on a forecast of the opponents' choices. "Noncooperative" refers to choices that are based on the participant's perceived selfinterest. Although game theory has been applied to many fields, Fudenberg and Tirole focus on the kinds of game theory that have been most useful in the study of economic problems. They also include some applications to political science. The fourteen chapters are grouped in parts that cover static games of complete information, dynamic games of complete information, static games of incomplete information, dynamic games of incomplete information, and advanced topics.

Dynamic Economics Intl Food Policy Res Inst

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Economic Dynamics in Discrete Time Springer Science & Business Media

The standard theory of decision making under uncertainty advises the decision maker to form a statistical model linking outcomes to decisions and then to choose the optimal distribution of outcomes. This assumes that the decision maker trusts the model completely. But what should a decision maker do if the model cannot be trusted? Lars Hansen and Thomas Sargent, two leading macroeconomists, push the field forward as they set about answering this question. They adapt robust control

techniques and apply them to economics. By using this theory to let decision makers acknowledge misspecification in economic modeling, the authors develop applications to a variety of problems in dynamic macroeconomics. Technical, rigorous, and self-contained, this book will be useful for macroeconomists who seek to improve the robustness of decision-making processes.
An Introduction to the Theory of Mechanism Design Harvard University Press
Since its initial publication, this text has defined courses in dynamic optimization taught to economics and management science students. The two-part treatment covers the calculus of variations and optimal control. 1998 edition.
Cambridge University Press
Winner of the prestigious Paul A. Samuelson Award for scholarly writing on lifelong financial security, John Cochrane's Asset Pricing now appears in a revised edition that unifies and brings the science of asset pricing up to date for advanced students and professionals. Cochrane traces the pricing of all assets back to a single idea--price equals expected discounted payoff--that captures the macro-economic risks underlying each security's value. By using a single, stochastic discount factor rather than a separate set of tricks for each asset class, Cochrane builds a unified account of modern asset pricing. He presents applications to stocks, bonds, and options. Each model--consumption based, CAPM, multifactor, term structure, and option pricing--is derived as a different specification of the discounted factor. The discount factor framework also leads to a state-space geometry for mean-variance frontiers and asset pricing models. It puts payoffs in different states of nature on the axes rather than mean and variance of return, leading to a new and conveniently linear geometrical representation of asset pricing ideas. Cochrane approaches empirical work with the Generalized Method of Moments, which studies sample average prices and discounted payoffs to determine whether price does equal expected discounted payoff. He translates between the discount factor, GMM, and state-space language and the beta, mean-variance, and regression language common in empirical work and earlier theory. The book also includes a review of recent empirical work on return predictability, value and other puzzles in the cross section, and equity premium puzzles and their resolution. Written to be a summary for academics and professionals as well as a textbook, this book condenses and advances recent scholarship in financial economics.
Mathematical Methods and Models for Economists Harvard University Press
Recursive Methods in Economic DynamicsHarvard University Press
Recursive Methods in Economic Dynamics Cambridge University Press
Business cycle theory has been one of the fastest growing fields in modern nonlinear economic dynamics. This book presents new mathematical methods for global analysis which have not previously been available in this easily accessible form. In addition it contains a presentation of full analyses of several models left open in the 1950s when the tools then available did not permit more systematic analysis.
Phase Diagrams and Their Economic Application Academic Press Incorporated

Develops the basic methods of recursive analysis, covers stochastic dynamic programming, and presents two fundamental theorems of welfare economics

Asset Pricing Princeton University Press

This is an examples-driven treatment of introductory economic dynamics for students with a basic familiarity of spreadsheets. Shone approaches the subject with the belief that true understanding of a subject can only be achieved by students themselves setting out a problem and manipulating it experimentally. Although all economics students now have access to spreadsheets, they are often used for little more than graphing economic data. This book encourages students to go several stages further and set up and investigate simple dynamic models. A web-site for students and instructors is included that contains an additional 100 questions for students and 100 for instructors.

Frontiers of Business Cycle Research MIT Press

The problem of efficient or optimal allocation of resources is a fundamental concern of economic analysis. This book provides surveys of significant results of the theory of optimal growth, as well as the techniques of dynamic optimization theory on which they are based. Armed with the results and methods of this theory, a researcher will be in an advantageous position to apply these versatile methods of analysis to new issues in the area of dynamic economics.

The ABCs of RBCs Princeton University Press

This introduction to modern business cycle theory uses a neoclassical growth framework to study the economic fluctuations associated with the business cycle. Presenting advances in dynamic economic theory and computational methods, it applies concepts to t

Student Solutions Manual to Accompany Economic Dynamics in Discrete Time Princeton University Press

This manual includes solutions to the odd-numbered exercises in Economic Dynamics in Discrete Time. Some exercises are purely analytical, while others require numerical methods. Computer codes are provided for most problems. Many exercises ask the reader to apply the methods learned in a chapter to solve related problems, but some exercises ask the reader to complete missing steps in the proof of a theorem or in the solution of an example in the book.

Game Theory MIT Press

To harness the full power of computer technology, economists need to use a broad range of mathematical techniques. In this book, Kenneth Judd presents techniques from the numerical analysis and applied mathematics literatures and shows how to use them in economic analyses. The book is divided into five parts. Part I provides a general introduction. Part II presents basics from numerical analysis on R^n, including linear equations, iterative methods, optimization, nonlinear equations, approximation methods, numerical integration and differentiation, and Monte Carlo methods. Part III covers methods for dynamic problems, including finite difference methods, projection methods, and numerical dynamic programming. Part IV covers perturbation and asymptotic solution methods. Finally, Part V covers applications to dynamic equilibrium analysis, including solution methods for perfect foresight models and rational expectation models. A website contains supplementary

material including programs and answers to exercises.

Real Analysis with Economic Applications MIT Press

This book is a companion volume to Dynamic Macroeconomic Theory by Thomas J. Sargent. It provides scrimmages in dynamic macroeconomic theory--precisely the kind of drills that people will need in order to learn the techniques of dynamic programming and its applications to economics. By doing these exercises, the reader can acquire the ability to put the theory to work in a variety of new situations, build technical skill, gain experience in fruitful ways of setting up problems, and learn to distinguish cases in which problems are well posed from cases in which they are not.The basic framework provided by variants of a dynamic general equilibrium model is used to analyze problems in macroeconomics and monetary economics. An equilibrium model provides a mapping from parameters of preferences, technologies, endowments, and "rules of the game" to a probability model for time series. The rigor of the logical connections between theory and observations that the mapping provides is an attractive feature of dynamic equilibrium, or "rational expectations," models. This book gives repeated and varied practice in constructing and interpreting this mapping.

Quantitative Methods and Applications Princeton University Press

This work presents the optimization framework for dynamic economics and treats a number of topics in economics, including growth, macroeconomics, microeconomics, finance and dynamic games. The book also teaches by examples, using concepts to solve simple problems, moving on to general propositions.