Asymptotic Theory For Econometricians Economic Theory Econometrics And Mathematical Economics

General Equilibrium Models of Monetary Economies: Studies in the Static Foundations of Monetary Theory is a collection of essays that addresses the integration of the theory of money and the theory of value by using a mathematical general equilibrium theory. The papers discuss monetary theory, microeconomic theory, bilateral trade, transactions costs, intertemporal allocation, and the value of money. The Arrow-Debreu model of Walrasian general equilibrium theory provides a framework to represent money as a device for facilitating trade among economic agents without the use of money as a medium of exchange and as a store of value. The essays analyze the rationale for using a medium of exchange, for using a store of value, and for holding of idle balances in equilibrium. The essays show that by explicit modeling of the structure and difficulties of trade, a powerful class of models which deny money and finance a role in the economy, has by itself shown to have provided the foundation for the structures of trade. The collection will prove helpful for economists, statistician, mathematicians, students or professors of economics and business.

This Lecture Note deals with asymptotic properties, i.e. weak and strong consistency and asymptotic normality, of parameter estimators of nonlinear regression models and nonlinear structural equations under various assumptions on the distribution of the data. The estimation methods involved are nonlinear least squares estimation (NLLSE), nonlinear robust M-estimation (NLRME) and non linear weighted robust M-estimation (NLWRME) for the regression case and nonlinear two-stage least squares estimation (NL2SLSE) and a new method called minimum information estimation (MIE) for the case of structural equations. The asymptotic properties of the NLLSE and the two robust M-estimation methods are derived from further elaborations of results of Jennrich. Special attention is payed to the comparison of the asymptotic efficiency of NLLSE and NLRME. It is shown that if the tails of the error distribution are fatter than those of the normal distribution NLRME is more efficient than NLLSE. The NLWRME method is appropriate if the distributions of both the errors and the regressors have fat tails. This study also improves and extends the NL2SLSE theory of Amemiya. The method involved is a variant of the instrumental variables method, requiring at least as many instrumental variables as parameters to be estimated. The new MIE method requires less instrumental variables. Asymptotic normality can be derived by employing only one instrumental variable and consistency can even be proved with out using any instrumental variables at all.

This book is the third of three volumes containing papers presented at the Seventh World Congress of the Econometric Society. The papers summarize and interpret key recent developments and discuss current and future directions in a wide range of topics in economics and econometrics. They cover both theory and applications. Authored by leading specialists in their fields these volumes provide a unique survey of progress in the discipline.

Econometrics is a study of good and bad ways to measure economic relations. In this book, Bernt Stigum considers the role that economic theory ought to play in such measurements and proposes a formal science of economics that provides the means to solve the measurement problems faced by econometric researchers. After describing the salient parts of a formal science of economics, Stigum compares its methods with the methods of contemporary applied econometrics. His goal is to develop a basis for meaningful discussion of the best way to incorporate economic theory in empirical analysis. Stigum conceives two scenarios for research in applied econometrics: contemporary econometrics in the tradition of Trygve Haavelmo and the formal theory-data confrontation envisioned by Ragnar Frisch. Stigum presents case studies of economic phenomena, contrasting the empirical analysis prescribed by contemporary applied econometrics with the empirical analysis prescribed by a formal theory-data confrontation. He finds significant and provocative differences. Which are we to believe when the statistical analyses of these two methodologies yield very different descriptions of the behavior characteristics of data variables and inferences about social reality? Stigum points to three aspects of contemporary econometric methodology that may benefit from serious discussions: the analysis of positively valued time series, a suspect characteristic of qualitative response models, and the search for linearly cointegrated time series. These three aspects are of as much concern to formal econometrics as they are to contemporary econometrics.

As most econometricians will readily agree, the data used in applied econometrics seldom provide accurate measurements for the pertinent theory's variables. Here, Bernt Stigum offers the first systematic and theoretically sound way of accounting for such inaccuracies. He and a distinguished group of contributors bridge econometrics and the philosophy of economics--two topics that seem worlds apart. They ask: How is a science of economics possible? The answer is elusive. Economic theory seems to be about abstract ideas or, it might be said, about toys in a toy community. How can a researcher with such tools learn anything about the social reality in which he or she lives? This book shows that an econometrician with the proper understanding of economic theory and the right kind of questions can gain knowledge about characteristic features of the social world. It addresses varied topics in both classical and Bayesian econometrics, offering ample evidence that its answer to the fundamental question is sound. The first book to comprehensively explore economic theory and econometrics simultaneously, Econometrics and the Philosophy of Economics represents an authoritative account of contemporary economic methodology. About a third of the chapters are authored or coauthored by Heather Anderson, Erik Biørn, Christophe Bontemps, Jeffrey A. Dubin, Harald E. Goldstein, Clive W.J. Granger, David F. Hendry, Herman Ruge-Jervell, Dale W. Jorgenson, Hans-Martin Krolzig, Nils Lid Hjort, Daniel L. McFadden, Grayham E. Mizon, Tore Schweder, Geir Storvik, and Herman K. van Dijk.

Modern economies are full of uncertainties and risk. Economics studies resource allocations in an uncertain market environment. As a generally applicable quantitative analytic tool for uncertain events, probability and statistics have been playing an important role in economic research. Econometrics is statistical analysis of economic and financial data. In the past four decades or so, economics has witnessed a so-called 'empirical revolution' in its research paradigm, and as the main methodology in empirical studies in economics, econometrics has been playing an important role. It has become an indispensable part of training in modern economics, business and management.This book develops a coherent set of econometric theory, methods and tools for economic models. It is written as a textbook for graduate students in economics, business, management, statistics, applied mathematics, and related fields. It can also be used as a reference book on econometric theory by scholars who may be interested in both theoretical and applied econometrics.

This book provides the most comprehensive treatment to date of microeconometrics, the analysis of individual-level data on the economic behavior of individuals or firms using regression methods for cross section and panel data. The book is oriented to the practitioner. A basic understanding of the linear regression model with matrix algebra is assumed. The text can be used for a microeconometrics course, typically a second-year economics PhD course; for data-oriented applied microeconometrics field courses; and as a reference work for graduate students and applied researchers who wish to fill in gaps in their toolkit. Distinguishing features of the book include emphasis on nonlinear models and robust inference, simulation-based estimation, and problems of complex survey data. The book makes frequent use of numerical examples based on generated data to illustrate the key models and methods. More substantially, it systematically integrates into the text empirical illustrations based on seven large and exceptionally rich data sets.

This book presents an econometric analysis concerned with the problems of testing for the existence of stochastic or deterministic trends in series which possess structural breaks. It opens with a survey of many of the available tests for unit roots, providing, at the same time, an introduction to the theory of testing for unit roots against both dixed and non-fixed trend-stationary alternatives.

Until now, students and researchers in nonparametric and semiparametric statistics and econometrics have had to turn to the latest journal articles to keep pace with these emerging methods of economic analysis. Nonparametric Econometrics fills a major gap by gathering together the most up-to-date theory and techniques and presenting them in a remarkably straightforward and accessible format. The empirical tests, data, and exercises included in this textbook help make it the ideal introduction for graduate students and an indispensable resource for researchers. Nonparametric and semiparametric methods have attracted a great deal of attention from statisticians in recent decades. While the majority of existing books on the subject operate from the presumption that the underlying data is strictly continuous in nature, more often than not social scientists deal with categorical data--nominal and ordinal--in applied settings. The conventional nonparametric approach to dealing with the presence of discrete variables is acknowledged to be unsatisfactory. This book is tailored to the needs of applied econometricians and social scientists. Qi Li and Jeffrey Racine emphasize nonparametric techniques suited to the rich array of data types--continuous, nominal, and ordinal--within one coherent framework. They also emphasize the properties of nonparametric estimators in the presence of potentially irrelevant variables. Nonparametric Econometrics covers all the material necessary to understand and apply nonparametric methods for real-world problems.

This book surveys recent developments in the rapidly expanding field of asymptotic distribution theory, placing special emphasis on the problems of time-dependence and heterogeneity. It is technically self-contained, with all but the most basic mathematical prerequisites being explained in their context.

This book is an introduction to the field of asymptotic statistics. The treatment is both practical and mathematically rigorous. In addition to most of the standard topics of an asymptotics course, including likelihood inference, M-estimation, the theory of asymptotic efficiency, U-statistics, and rank procedures, the book also presents recent research topics such as semiparametric models, the bootstrap, and empirical processes and their applications. The topics are organized from the central idea of approximation by limit experiments, which gives the book one of its unifying themes. This entails mainly the local approximation of the classical i.i.d. set up with smooth parameters by location experiments involving a single, normally distributed observation. Thus, even the standard subjects of asymptotic statistics are presented in a novel way. Suitable as a graduate or Master s level statistics text, this book will also give researchers an overview of the latest research in asymptotic statistics.

Finance Constraints and the Theory of Money: Selected Papers gathers together the work of S. C. Tsiang, one of the most cogent critics of the Keynesian stock approach to money in all its forms and one of the foremost champions of the flow approach. Tsiang's papers focus on finance constraints and the theory of money, tackling topics such as the role of money in trade-balance stability and the monetary theoretic foundation of the modern monetary approach to the balance of payments, as well as the diffusion of reserves and the money supply multiplier. Comprised of 17 chapters, this volume begins by providing a background to the development of Tsiang's thinking on monetary theory and why he objected to the Keynesian stock equilibrium approach to money. The reader is then introduced to speculation and income stability; misconceptions in monetary theory and their influences on financial and banking practices; and liquidity preference in general equilibrium analysis. Subsequent chapters deal with the optimum supply of money; the total inadequacy of "Keynesian" balance of payments theory; and the rationale of the mean-standard deviation analysis, skewness preference, and the demand for money. This book will be a useful resource for practitioners interested in economic theory, econometrics, and mathematical economics.

Many relationships in economics, and also in other fields, are both dynamic and nonlinear. A major advance in econometrics over the last fifteen years has been the development of a theory of estimation and inference for dy namic nonlinear models. This advance was accompanied by improvements in computer technology that facilitate the practical implementation of such estimation methods. In two articles in Econometric Reviews, i.e., Pötscher and Prucha {1991a,b), we provided -an expository discussion of the basic structure of the asymptotic theory of M-estimators in dynamic nonlinear models and a review of the literature up to the beginning of this decade. Among others, the class of M-estimators contains least mean distance estimators (includ ing maximum likelihood estimators) and generalized method of moment estimators. The present book expands and revises the discussion in those articles. It is geared towards the professional econometrician or statistician. Besides reviewing the literature we also presented in the above men tioned articles a number of then new results. One example is a consis tency result for the case where the identifiable uniqueness condition fails.

This is the perfect (and essential) supplement for all econometrics classes--from a rigorous first undergraduate course, to a first master's, to a PhD course. Explains what is going on in textbooks full of proofs and formulas Offers intuition, skepticism, insights, humor, and practical advice (dos and don'ts) Contains new chapters that cover instrumental variables and computational considerations Includes additional information on GMM, nonparametrics, and an introduction to wavelets

The highly prized ability to make financial plans with some certainty about the future comes from the core fields of economics. In recent years the availability of more data, analytical tools of greater precision, and ex post studies of business decisions have increased demand for information about economic forecasting. Volumes 2A and 2B, which follows Nobel laureate Clive Granger's Volume 1 (2006), concentrate on two major subjects. Volume 2A covers innovations in methodologies, specifically macroforecasting and forecasting financial variables. Volume 2B investigates commercial applications, with sections on forecasters' objectives and methodologies. Experts provide surveys of a large range of literature scattered across applied and theoretical statistics journals as well as econometrics and empirical economics journals. The Handbook of Economic Forecasting Volumes 2A and 2B provide a unique compilation of chapters giving a coherent overview of forecasting theory and applications in one place and with up-to-date accounts of all major conceptual issues. Focuses on innovation in economic forecasting via industry applications Presents coherent summaries of subjects in economic forecasting that stretch from methodologies to applications Makes details about economic forecasting accessible to scholars in fields outside economics

Papers from a 1988 symposium on the estimation and testing of models that impose relatively weak restrictions on the stochastic behaviour of data.

This book is intended to provide a somewhat more comprehensive and unified treatment of large sample theory than has been available previously and to relate the fundamental tools of asymptotic theory directly to many of the estimators of interest to econometricians. In addition, because economic data are generated in a variety of different contexts (time series, cross sections, time series--cross sections), we pay particular attention to the similarities and differences in the techniques appropriate to each of these contexts.

This is a survey of the recent developments in the rapidly expanding field of asymptotic distribution theory, with a special emphasis on the problems of time dependence and heterogeneity. The book is designed to be useful on two levels. First as a textbook and reference work, giving definitions of the relevant mathematical concepts, statements, and proofs of the important results from the probability literature, and numerous examples; and second, as an account of recent work in thefield of particular interest to econometricians, including a number of important new results. It is virtually self-contained, with all but the most basic technical prerequisites being explained in their context; mathematical topics include measure theory, integration, metric spaces, and topology, with applications to random variables, and an extended treatment of conditional probability. Other subjects treated include: stochastic processes, mixing processes, martingales, mixingales, and near-epoch dependence; the weak and strong laws of large numbers; weak convergence; and central limit theorems for nonstationary and dependent processes. The functional central limit theorem and its ramifications are covered in detail, including an account of the theoretical underpinnings (the weak convergence of measures on metric spaces), Brownian motion, the multivariate invariance principle, and convergence to stochastic integrals. This material is of special relevance to the theory of cointegration.

Following theseminal Palgrave Handbook of Econometrics: Volume I , this second volume brings together the finestacademicsworking in econometrics today andexploresapplied econometrics, containing contributions onsubjects includinggrowth/development econometrics and applied econometrics and computing.

This paper develops asymptotic econometric theory to help understand data generated by a present value model with a discount factor near one. A leading application is to exchange rate models. A key assumption of the asymptotic theory is that the discount factor approaches 1 as the sample size grows. The finite sample approximation implied by the asymptotic theory is quantitatively congruent with modest departures from random walk behavior with imprecise estimation of a well-studied regression relating spot and forward exchange rates.

Methods for Estimation and Inference in Modern Econometrics provides a comprehensive introduction to a wide range of emerging topics, such as generalized empirical likelihood estimation and alternative asymptotics under drifting parameterizations, which have not been discussed in detail outside of highly technical research papers. The book also addresses several problems often arising in the analysis of economic data, including weak identification, model misspecification, and possible nonstationarity. The book’s appendix provides a review of some basic concepts and results from linear algebra, probability theory, and statistics that are used throughout the book. Topics covered include: Well-established nonparametric and parametric approaches to estimation and conventional (asymptotic and bootstrap) frameworks for statistical inference Estimation of models based on moment restrictions implied by economic theory, including various method-of-moments estimators for unconditional and conditional moment restriction models, and asymptotic theory for correctly specified and misspecified models Non-conventional asymptotic tools that lead to improved finite sample inference, such as higher-order asymptotic analysis that allows for more accurate approximations via various asymptotic expansions, and asymptotic approximations based on drifting parameter sequences Offering a unified approach to studying econometric problems, Methods for Estimation and Inference in Modern Econometrics links most of the existing estimation and inference methods in a general framework to help readers synthesize all aspects of modern econometric theory. Various theoretical exercises and suggested solutions are included to facilitate understanding.

Asymptotic Theory for EconometriciansAcademic Press

These three volumes contain an account of Professor Henri Theil's distinguished career as a leader, advisor, administrator, teacher, and researcher in economics and econometrics. The books also contain a selection of his contributions in many areas, such as econometrics, demand analysis, information theory, forecasting, statistics, economic policy analysis and management science. To date he has contributed over 250 articles in refereed journals and chapters in books, and 15 books, three of which became citation classics. His books and articles have appeared in (and have been translated into) many languages, such as Polish, Russian, Dutch, English, French, German, Hungarian, Italian and Japanese. This collection provides excellent reference material to researchers and graduate students working in a variety of disciplines, such as econometrics, economics, management science, operations research, and statistics. Moreover, Professor Theil's career serves as a role model for younger generations of scholars, both in terms of his approach to research and his commitment to his profession. Professor Theil's distinguished career as an academic began in 1953 when he was appointed Professor of Econometrics at the Netherlands School of Economics in Rotterdam (now Erasmus University). Three years later he founded the Econometric Institute in Rotterdam and served as its first director until 1966, when he accepted a joint appointment at the Graduate School of Business and Department of Economics, University of Chicago, U.S.A. In 1981, Theil was appointed to the McKethan-Matherly Eminent Chair at the Graduate School of Business Administration of the University of Florida in Gainesville. Theil has received many international honours including four honorary degrees.

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Myoung-jae Lee reviews the three most popular methods (and their extensions) in applied economics and other social sciences: matching, regression discontinuity, and difference in differences. This book introduces the underlying econometric and statistical ideas, shows what is identified and how the identified parameters are estimated, and illustrates how they are applied with real empirical examples. Lee emphasizes how to implement the three methods with data: data and programs are provided in a useful online appendix. All readers-theoretical econometricians/statisticians, applied economists/social-scientists and researchers/students-will find something useful in the book from different perspectives.

This book presents some of the more recent developments in nonlinear time series, including Bayesian analysis and cointegration tests.

Economic Modeling and Inference takes econometrics to a new level by demonstrating how to combine modern economic theory with the latest statistical inference methods to get the most out of economic data. This graduate-level textbook draws applications from both microeconomics and macroeconomics, paying special attention to financial and labor economics, with an emphasis throughout on what observations can tell us about stochastic dynamic models of rational optimizing behavior and equilibrium. Bent Jesper Christensen and Nicholas Kiefer show how parameters often thought estimable in applications are not identified even in simple dynamic programming models, and they investigate the roles of extensions, including measurement error, imperfect control, and random utility shocks for inference. When all implications of optimization and equilibrium are imposed in the empirical procedures, the resulting estimation problems are often nonstandard, with the estimators exhibiting nonregular asymptotic behavior such as short-ranked covariance, superconsistency, and non-Gaussianity. Christensen and Kiefer explore these properties in detail, covering areas including job search models of the labor market, asset pricing, option pricing, marketing, and retirement planning. Ideal for researchers and practitioners as well as students, Economic Modeling and Inference uses real-world data to illustrate how to derive the best results using a combination of theory and cutting-edge econometric techniques. Covers identification and estimation of dynamic programming models Treats sources of error--measurement error, random utility, and imperfect control Features financial applications including asset pricing, option pricing, and optimal hedging Describes labor applications including job search, equilibrium search, and retirement Illustrates the wide applicability of the approach using micro, macro, and marketing examples

These essays explore state-of-the-art theoretical and applied advances in econometrics.

As conceived by the founders of the Econometric Society, econometrics is a field that uses economic theory and statistical methods to address empirical problems in economics. It is a tool for empirical discovery and policy analysis. The chapters in this volume embody this vision and either implement it directly or provide the tools for doing so. This vision is not shared by those who view econometrics as a branch of statistics rather than as a distinct field of knowledge that designs methods of inference from data based on models of human choice behavior and social interactions. All of the essays in this volume and its companion volume 6A offer guidance to the practitioner on how to apply the methods they discuss to interpret economic data. The authors of the chapters are all leading scholars in the fields they survey and extend. Handbook of Econometrics is now available online at ScienceDirect — full-text online from volume 1 onwards. *Part of the renowned Handbooks in Economics Series *Updates and expands the exisiting Handbook of Econometrics volumes *An invaluable reference written by some of the world's leading econometricians.

The Hamiltonian Approach to Dynamic Economics focuses on the application of the Hamiltonian approach to dynamic economics and attempts to provide some unification of the theory of heterogeneous capital. Emphasis is placed on the stability of long-run steady-state equilibrium in models of heterogeneous capital accumulation. Generalizations of the Samuelson-Scheinkman approach are also given. Moreover, conditions are sought on the geometry of the Hamiltonian function (that is, on static technology) that suffice to preserve under (not necessarily small) perturbation the basic properties of the Hamiltonian dynamical system. Comprised of eight essays, this book begins with an introduction to Hamiltonian dynamics in economics, followed by a discussion on optimal steady states of n-sector growth models when utility is discounted. Optimal growth and decentralized or descriptive growth models in both continuous and discrete time are treated as applications of Hamiltonian dynamics. Theproblem of optimal growth with zero discounting is considered, with emphasis on a steepness condition on the Hamiltonian function. The general problem of decentralized growth with instantaneously adjusted expectations about price changes is also analyzed, along with the global asymptotic stability of optimal control systems with applications to the theory of economic growth. This monograph will be of value to mathematicians and economists.

This book examines the consequences of misspecifications for the interpretation of likelihood-based methods of statistical estimation and interference. The analysis concludes with an examination of methods by which the possibility of misspecification can be empirically investigated.