

Economic Forecasting Graham Elliott Allan Timmermann

In the aftermath of the recent financial crisis, the federal government has pursued significant regulatory reforms, including proposals to measure and monitor systemic risk. However, there is much debate about how this might be accomplished quantitatively and objectively—or whether this is even possible. A key issue is determining the appropriate trade-offs between risk and reward from a policy and social welfare perspective given the potential negative impact of crises. One of the first books to address the challenges of measuring statistical risk from a system-wide perspective, *Quantifying Systemic Risk* looks at the means of measuring systemic risk and explores alternative approaches. Among the topics discussed are the challenges of tying regulations to specific quantitative measures, the effects of learning and adaptation on the evolution of the market, and the distinction between the shocks that start a crisis and the mechanisms that enable it to grow.

NEW YORK TIMES BESTSELLER • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY THE ECONOMIST “The most important book on decision making since Daniel Kahneman's *Thinking, Fast and Slow*.”—Jason Zweig, *The Wall Street Journal* Everyone would benefit from seeing further into the future, whether buying stocks, crafting policy, launching a new product, or simply planning the week's meals. Unfortunately, people tend to be terrible forecasters. As Wharton professor Philip Tetlock showed in a landmark 2005 study, even experts' predictions are only slightly better than chance. However, an important and underreported conclusion of that study was that some experts do have real foresight, and Tetlock has spent the past decade trying to figure out why. What makes some people so good? And can this talent be taught? In

Superforecasting, Tetlock and coauthor Dan Gardner offer a masterwork on prediction, drawing on decades of research and the results of a massive, government-funded forecasting tournament. The Good Judgment Project involves tens of thousands of ordinary people—including a Brooklyn filmmaker, a retired pipe installer, and a former ballroom dancer—who set out to forecast global events. Some of the volunteers have turned out to be astonishingly good.

They've beaten other benchmarks, competitors, and prediction markets. They've even beaten the collective judgment of intelligence analysts with access to classified information. They are "superforecasters." In this groundbreaking and accessible book, Tetlock and Gardner show us how we can learn from this elite group. Weaving together stories of forecasting successes (the raid on Osama bin Laden's compound) and failures (the Bay of Pigs) and interviews with a range of high-level decision makers, from David Petraeus to Robert Rubin, they show that good forecasting doesn't require powerful computers or arcane methods. It involves gathering evidence from a variety of sources, thinking probabilistically, working in teams, keeping score, and being willing to admit error and change

course. Superforecasting offers the first demonstrably effective way to improve our ability to predict the future—whether in business, finance, politics, international affairs, or daily life—and is destined to become a modern classic.

This book provides a clear and authoritative introduction to the theory of buildings, a topic of central importance to mathematicians interested in the geometric aspects of group theory. Its detailed presentation makes it suitable for graduate students as well as specialists. Richard Weiss begins with an introduction to Coxeter groups and goes on to present basic properties of arbitrary buildings before specializing to the spherical case. Buildings are described throughout in the language of graph theory. The Structure of Spherical Buildings includes a reworking of the proof of Jacques Tits's Theorem 4.1.2. upon which Tits's classification of thick irreducible spherical buildings of rank at least three is based. In fact, this is the first book to include a proof of this famous result since its original publication. Theorem 4.1.2 is followed by a systematic study of the structure of spherical buildings and their automorphism groups based on the Moufang property. Moufang buildings of rank two were recently classified by Tits and Weiss. The last chapter provides an overview of the classification of spherical buildings, one that reflects these and other important developments.

The present Special Issue collects a number of new contributions both at the theoretical level and in terms of applications in the areas of nonparametric and semiparametric econometric methods. In particular, this collection of papers that cover areas such as developments in local smoothing techniques, splines, series estimators, and wavelets will add to the existing rich literature on these subjects and enhance our ability to use data to test economic hypotheses in a variety of fields, such as financial economics, microeconomics, macroeconomics, labor economics, and economic growth, to name a few.

A cutting-edge graduate-level textbook on the macroeconomics of international trade Combining theoretical models and data in ways unimaginable just a few years ago, open economy macroeconomics has experienced enormous growth over the past several decades. This rigorous and self-contained textbook brings graduate students, scholars, and policymakers to the research frontier and provides the tools and context necessary for new research and policy proposals. Martín Uribe and Stephanie Schmitt-Grohé factor in the discipline's latest developments, including major theoretical advances in incorporating financial and nominal frictions into microfounded dynamic models of the open economy, the availability of macro- and microdata for emerging and developed countries, and a revolution in the tools available to simulate and estimate dynamic stochastic models. The authors begin with a canonical general equilibrium model of an open economy and then build levels of complexity through the coverage of important topics such as international business-cycle analysis, financial frictions as drivers and transmitters of business cycles and global crises, sovereign default, pecuniary externalities, involuntary unemployment, optimal macroprudential

policy, and the role of nominal rigidities in shaping optimal exchange-rate policy. Based on courses taught at several universities, *Open Economy Macroeconomics* is an essential resource for students, researchers, and practitioners. Detailed exploration of international business-cycle analysis Coverage of financial frictions as drivers and transmitters of business cycles and global crises Extensive investigation of nominal rigidities and their role in shaping optimal exchange-rate policy Other topics include fixed exchange-rate regimes, involuntary unemployment, optimal macroprudential policy, and sovereign default and debt sustainability Chapters include exercises and replication codes

An integrated approach to the economics of sovereign default Fiscal crises and sovereign default repeatedly threaten the stability and growth of economies around the world. Mark Aguiar and Manuel Amador provide a unified and tractable theoretical framework that elucidates the key economics behind sovereign debt markets, shedding light on the frictions and inefficiencies that prevent the smooth functioning of these markets, and proposing sensible approaches to sovereign debt management. *The Economics of Sovereign Debt and Default* looks at the core friction unique to sovereign debt—the lack of strong legal enforcement—and goes on to examine additional frictions such as deadweight costs of default, vulnerability to runs, the incentive to “dilute” existing creditors, and sovereign debt’s distortion of investment and growth. The book uses the tractable framework to isolate how each additional friction affects the equilibrium outcome, and illustrates its counterpart using state-of-the-art computational modeling. The novel approach presented here contrasts the outcome of a constrained efficient allocation—one chosen to maximize the joint surplus of creditors and government—with the competitive equilibrium outcome. This allows for a clear analysis of the extent to which equilibrium prices efficiently guide the government’s debt and default decisions, and of what drives divergences with the efficient outcome. Providing an integrated approach to sovereign debt and default, this incisive and authoritative book is an ideal resource for researchers and graduate students interested in this important topic.

"A truly excellent book that explains where our pandemic response went wrong, and how we can understand those failings using the tools of economics." —Tyler Cowen, Holbert L. Harris Chair of Economics at George Mason University and coauthor of the blog *Marginal Revolution*

Have you ever stopped to wonder why hand sanitizer was missing from your pharmacy for months after the COVID-19 pandemic hit? Why some employers and employees were arguing over workers being re-hired during the first COVID-19 lockdown? Why passenger airlines were able to get their own ring-fenced bailout from Congress? *Economics in One Virus* answers all these pandemic-related questions and many more, drawing on the dramatic events of 2020 to bring to life some of the most important principles of economic thought. Packed with supporting data and the best new academic evidence, those uninitiated in economics will be given a crash-course in the subject through the applied case-study of the COVID-19 pandemic, to help

explain everything from why the U.S. was underprepared for the pandemic to how economists go about valuing the lives saved from lockdowns. After digesting this highly readable, fast-paced, and provocative virus-themed economic tour, readers will be able to make much better sense of the events that they've lived through. Perhaps more importantly, the insights on everything from the role of the price mechanism to trade and specialization will grant even those wholly new to economics the skills to think like an economist in their own lives and when evaluating the choices of their political leaders.

Artificial intelligence (AI) has grown in presence in asset management and has revolutionized the sector in many ways. It has improved portfolio management, trading, and risk management practices by increasing efficiency, accuracy, and compliance. In particular, AI techniques help construct portfolios based on more accurate risk and return forecasts and more complex constraints. Trading algorithms use AI to devise novel trading signals and execute trades with lower transaction costs. AI also improves risk modeling and forecasting by generating insights from new data sources. Finally, robo-advisors owe a large part of their success to AI techniques. Yet the use of AI can also create new risks and challenges, such as those resulting from model opacity, complexity, and reliance on data integrity.

Tools to improve decision making in an imperfect world This publication provides readers with a thorough understanding of Bayesian analysis that is grounded in the theory of inference and optimal decision making. Contemporary Bayesian Econometrics and Statistics provides readers with state-of-the-art simulation methods and models that are used to solve complex real-world problems. Armed with a strong foundation in both theory and practical problem-solving tools, readers discover how to optimize decision making when faced with problems that involve limited or imperfect data. The book begins by examining the theoretical and mathematical foundations of Bayesian statistics to help readers understand how and why it is used in problem solving. The author then describes how modern simulation methods make Bayesian approaches practical using widely available mathematical applications software. In addition, the author details how models can be applied to specific problems, including: * Linear models and policy choices * Modeling with latent variables and missing data * Time series models and prediction * Comparison and evaluation of models The publication has been developed and fine-tuned through a decade of classroom experience, and readers will find the author's approach very engaging and accessible. There are nearly 200 examples and exercises to help readers see how effective use of Bayesian statistics enables them to make optimal decisions. MATLAB and R computer programs are integrated throughout the book.

An accompanying Web site provides readers with computer code for many examples and datasets. This publication is tailored for research professionals who use econometrics and similar statistical methods in their work. With its emphasis on practical problem solving and extensive use of examples and exercises, this is also an excellent textbook for graduate-level students in a broad range of fields, including economics, statistics, the social sciences, business, and public policy.

The last twenty years have witnessed tremendous advances in the mathematical, statistical, and computational tools available to applied macroeconomists. This rapidly evolving field has redefined how researchers test models and validate theories. Yet until now there has been no textbook that unites the latest methods and bridges the divide between theoretical and applied work. Fabio Canova brings together dynamic equilibrium theory, data analysis, and advanced

econometric and computational methods to provide the first comprehensive set of techniques for use by academic economists as well as professional macroeconomists in banking and finance, industry, and government. This graduate-level textbook is for readers knowledgeable in modern macroeconomic theory, econometrics, and computational programming using RATS, MATLAB, or Gauss. Inevitably a modern treatment of such a complex topic requires a quantitative perspective, a solid dynamic theory background, and the development of empirical and numerical methods--which is where Canova's book differs from typical graduate textbooks in macroeconomics and econometrics. Rather than list a series of estimators and their properties, Canova starts from a class of DSGE models, finds an approximate linear representation for the decision rules, and describes methods needed to estimate their parameters, examining their fit to the data. The book is complete with numerous examples and exercises. Today's economic analysts need a strong foundation in both theory and application. *Methods for Applied Macroeconomic Research* offers the essential tools for the next generation of macroeconomists.

Portfolio risk forecasting has been and continues to be an active research field for both academics and practitioners. Almost all institutional investment management firms use quantitative models for their portfolio forecasting, and researchers have explored models' econometric foundations, relative performance, and implications for capital market behavior and asset pricing equilibrium. *Portfolio Risk Analysis* provides an insightful and thorough overview of financial risk modeling, with an emphasis on practical applications, empirical reality, and historical perspective. Beginning with mean-variance analysis and the capital asset pricing model, the authors give a comprehensive and detailed account of factor models, which are the key to successful risk analysis in every economic climate. Topics range from the relative merits of fundamental, statistical, and macroeconomic models, to GARCH and other time series models, to the properties of the VIX volatility index. The book covers both mainstream and alternative asset classes, and includes in-depth treatments of model integration and evaluation. Credit and liquidity risk and the uncertainty of extreme events are examined in an intuitive and rigorous way. An extensive literature review accompanies each topic. The authors complement basic modeling techniques with references to applications, empirical studies, and advanced mathematical texts. This book is essential for financial practitioners, researchers, scholars, and students who want to understand the nature of financial markets or work toward improving them.

There exist eight reliable ways to increase poverty and the United States is now pursuing seven of them, according to Lebergott. His provocative examination of income and wealth in this country reveals the impossibility of ending poverty permanently without changing American capitalism beyond recognition. Originally published in 1976. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

A comprehensive and integrated approach to economic forecasting problems *Economic forecasting* involves choosing simple yet robust models to best approximate highly complex and evolving data-generating processes. This poses unique challenges for researchers in a host of practical forecasting situations, from forecasting budget deficits and assessing financial risk to predicting inflation and stock market returns. *Economic Forecasting* presents a comprehensive, unified approach to assessing the costs and benefits of different methods currently available to forecasters. This text approaches forecasting problems from the perspective of decision theory and estimation, and demonstrates the profound implications of

this approach for how we understand variable selection, estimation, and combination methods for forecasting models, and how we evaluate the resulting forecasts. Both Bayesian and non-Bayesian methods are covered in depth, as are a range of cutting-edge techniques for producing point, interval, and density forecasts. The book features detailed presentations and empirical examples of a range of forecasting methods and shows how to generate forecasts in the presence of large-dimensional sets of predictor variables. The authors pay special attention to how estimation error, model uncertainty, and model instability affect forecasting performance. Presents a comprehensive and integrated approach to assessing the strengths and weaknesses of different forecasting methods Approaches forecasting from a decision theoretic and estimation perspective Covers Bayesian modeling, including methods for generating density forecasts Discusses model selection methods as well as forecast combinations Covers a large range of nonlinear prediction models, including regime switching models, threshold autoregressions, and models with time-varying volatility Features numerous empirical examples Examines the latest advances in forecast evaluation Essential for practitioners and students alike

An introduction to the theory and methods of empirical asset pricing, integrating classical foundations with recent developments. This book offers a comprehensive advanced introduction to asset pricing, the study of models for the prices and returns of various securities. The focus is empirical, emphasizing how the models relate to the data. The book offers a uniquely integrated treatment, combining classical foundations with more recent developments in the literature and relating some of the material to applications in investment management. It covers the theory of empirical asset pricing, the main empirical methods, and a range of applied topics. The book introduces the theory of empirical asset pricing through three main paradigms: mean variance analysis, stochastic discount factors, and beta pricing models. It describes empirical methods, beginning with the generalized method of moments (GMM) and viewing other methods as special cases of GMM; offers a comprehensive review of fund performance evaluation; and presents selected applied topics, including a substantial chapter on predictability in asset markets that covers predicting the level of returns, volatility and higher moments, and predicting cross-sectional differences in returns. Other chapters cover production-based asset pricing, long-run risk models, the Campbell-Shiller approximation, the debate on covariance versus characteristics, and the relation of volatility to the cross-section of stock returns. An extensive reference section captures the current state of the field. The book is intended for use by graduate students in finance and economics; it can also serve as a reference for professionals.

Global Production is the first book to provide a fully comprehensive overview of the complicated issues facing multinational companies and their global sourcing strategies. Few international trade transactions today are based on the exchange of finished goods; rather, the majority of transactions are dominated by sales of individual components and intermediary services. Many firms organize global production around offshoring parts, components, and services to producers in distant countries, and contracts are drawn up specific to the parties and distinct legal systems involved. Pol Antràs examines the contractual frictions that arise in the international system of production and how these frictions influence the world economy. Antràs discusses the inevitable complications that develop in contract negotiation and execution. He provides a unified framework that sheds light on the factors helping global firms determine production locations and other organizational choices. Antràs also implements a series of systematic empirical tests, based on recent data from the U.S. Customs and Census Offices, which demonstrate the relevance of contractual factors in global production decisions. Using an integrated approach, Global Production is an excellent resource for researchers, graduate students, and advanced undergraduates interested in the inner workings of international economics and trade.

Few areas in economics are as controversial as economic forecasting. While the field has sparked great hopes for the prediction of economic trends and events throughout the 20th and 21st centuries, economic forecasts have often proved inaccurate or unreliable, thus provoking severe criticism in times of unpredicted crisis. Despite these failures, economic forecasting has not lost its importance. *Futures Past* considers the history and present state of economic forecasting, giving a fascinating account of the changing practices involved, their origins, records, and their implications. By bringing together economists, historians, and sociologists, this volume offers fresh perspectives on the place of forecasting in modern industrial societies, thereby making a broader claim for greater interdisciplinary cooperation in the history of economics.

Practices used to address economic forecasting problems have undergone substantial changes over recent years. We review how such changes have influenced the ways in which a range of forecasting questions are being addressed. We also discuss the promises and challenges arising from access to big data. Finally, we review empirical evidence and experience accumulated from the use of forecasting methods to a range of economic and financial variables.

R is a language and environment for data analysis and graphics. It may be considered an implementation of S, an award-winning language initially developed at Bell Laboratories since the late 1970s. The R project was initiated by Robert Gentleman and Ross Ihaka at the University of Auckland, New Zealand, in the early 1990s, and has been developed by an international team since mid-1997. Historically, econometricians have favored other computing environments, some of which have fallen by the wayside, and also a variety of packages with canned routines. We believe that R has great potential in econometrics, both for research and for teaching. There are at least three reasons for this: (1) R is mostly platform independent and runs on Microsoft Windows, the Mac family of operating systems, and various flavors of Unix/Linux, and also on some more exotic platforms. (2) R is free software that can be downloaded and installed at no cost from a family of mirror sites around the globe, the Comprehensive R Archive Network (CRAN); hence students can easily install it on their own machines. (3) R is open-source software, so that the full source code is available and can be inspected to understand what it really does, learn from it, and modify and extend it. We also like to think that platform independence and the open-source philosophy make R an ideal environment for reproducible econometric research.

Policymakers and business practitioners are eager to gain access to reliable information on the state of the economy for timely decision making. More so now than ever. Traditional economic indicators have been criticized for delayed reporting, out-of-date methodology, and neglecting some aspects of the economy. Recent advances in economic theory, econometrics, and information technology have fueled research in building broader, more accurate, and higher-frequency economic indicators. This volume contains contributions from a group of prominent economists who address alternative economic indicators, including indicators in the financial market, indicators for business cycles, and indicators of

economic uncertainty.

In mainstream economics, and particularly in New Keynesian macroeconomics, the booms and busts that characterize capitalism arise because of large external shocks. The combination of these shocks and the slow adjustments of wages and prices by rational agents leads to cyclical movements. In this book, Paul De Grauwe argues for a different macroeconomics model--one that works with an internal explanation of the business cycle and factors in agents' limited cognitive abilities. By creating a behavioral model that is not dependent on the prevailing concept of rationality, De Grauwe is better able to explain the fluctuations of economic activity that are an endemic feature of market economies. This new approach illustrates a richer macroeconomic dynamic that provides for a better understanding of fluctuations in output and inflation. De Grauwe shows that the behavioral model is driven by self-fulfilling waves of optimism and pessimism, or animal spirits. Booms and busts in economic activity are therefore natural outcomes of a behavioral model. The author uses this to analyze central issues in monetary policies, such as output stabilization, before extending his investigation into asset markets and more sophisticated forecasting rules. He also examines how well the theoretical predictions of the behavioral model perform when confronted with empirical data. Develops a behavioral macroeconomic model that assumes agents have limited cognitive abilities Shows how booms and busts are characteristic of market economies Explores the larger role of the central bank in the behavioral model Examines the destabilizing aspects of asset markets

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

Every economic system exists only to satisfy human wants, yet most systems fail to do so. Taking a keen look at the gap between goal and result, Stanley

Lebergott appraises public policies relating to the U.S. distribution of income and wealth today. Part I shows that many programs have disappointed their proponents because certain basic assumptions were not understood. The author's new data suggest more realistic answers to much-debated questions: Are the rich getting richer? How much "upward mobility" exists? What approaches to poverty, starvation, and discrimination are practical today? In Part II, size distributions are derived for wealth in 1970, for income in 1900, and for white and non-white income for the period 1900-1970. These data include new estimates for key items in the standard of living since 1900, with detail on services that have dominated the "postindustrial" economy. Originally published in 1976. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

Originally, economics was called political economy, and those studying it readily accepted that economic decisions are made in a political world. But economics eventually separated itself from politics to pursue rigorous methods of analyzing individual behavior and markets. Recently, an increasing number of economists have turned their attention to the old question of how politics shape economic outcomes. To date, however, this growing literature has lacked a cogent organization and a unified approach. Here, in the first full-length examination of how political forces affect economic policy decisions, Allan Drazen provides a systematic treatment, organizing the increasingly influential "new political economy" as a more established field at the highly productive intersection of economics and political science. Although he provides an extraordinarily helpful guide to the recent explosion of papers on political economy in macroeconomics, Drazen moves far beyond survey, giving definition and structure to the field. He proposes that conflict or heterogeneity of interests should be the field's essential organizing principle, because political questions arise only when people disagree over which economic policies should be enacted or how economic costs and benefits should be distributed. Further, he illustrates how heterogeneity of interests is crucial in every part of political economy. Drazen's approach allows innovative treatment--using rigorous economic models--of public goods and finance, economic growth, the open economy, economic transition, political business cycles, and all of the traditional topics of macroeconomics. This major text will have an enormous impact on students and professionals in political science as well as economics, redefining how decision makers on several continents think about the full range of macroeconomic issues and informing the approaches of the next generation of economists.

“ McCloskey and Ziliak have been pushing this very elementary, very correct,

very important argument through several articles over several years and for reasons I cannot fathom it is still resisted. If it takes a book to get it across, I hope this book will do it. It ought to.” — Thomas Schelling, Distinguished University Professor, School of Public Policy, University of Maryland, and 2005 Nobel Prize Laureate in Economics “ With humor, insight, piercing logic and a nod to history, Ziliak and McCloskey show how economists— and other scientists— suffer from a mass delusion about statistical analysis. The quest for statistical significance that pervades science today is a deeply flawed substitute for thoughtful analysis. . . . Yet few participants in the scientific bureaucracy have been willing to admit what Ziliak and McCloskey make clear: the emperor has no clothes.” — Kenneth Rothman, Professor of Epidemiology, Boston University School of Health

The Cult of Statistical Significance shows, field by field, how “ statistical significance,” a technique that dominates many sciences, has been a huge mistake. The authors find that researchers in a broad spectrum of fields, from agronomy to zoology, employ “ testing” that doesn’ t test and “ estimating” that doesn’ t estimate. The facts will startle the outside reader: how could a group of brilliant scientists wander so far from scientific magnitudes? This study will encourage scientists who want to know how to get the statistical sciences back on track and fulfill their quantitative promise. The book shows for the first time how wide the disaster is, and how bad for science, and it traces the problem to its historical, sociological, and philosophical roots. Stephen T. Ziliak is the author or editor of many articles and two books. He currently lives in Chicago, where he is Professor of Economics at Roosevelt University. Deirdre N. McCloskey, Distinguished Professor of Economics, History, English, and Communication at the University of Illinois at Chicago, is the author of twenty books and three hundred scholarly articles. She has held Guggenheim and National Humanities Fellowships. She is best known for *How to Be Human* Though an Economist* (University of Michigan Press, 2000) and her most recent book, *The Bourgeois Virtues: Ethics for an Age of Commerce* (2006).

This book looks at the distribution of income and wealth and the effects that this has on the macroeconomy, and vice versa. Is a more equal distribution of income beneficial or harmful for macroeconomic growth, and how does the distribution of wealth evolve in a market economy? Taking stock of results and methods developed in the context of the 1990s revival of growth theory, the authors focus on capital accumulation and long-run growth. They show how rigorous, optimization-based technical tools can be applied, beyond the representative-agent framework of analysis, to account for realistic market imperfections and for political-economic interactions. The treatment is thorough, yet accessible to students and nonspecialist economists, and it offers specialist readers a wide-ranging and innovative treatment of an increasingly important research field. The book follows a single analytical thread through a series of different growth models, allowing readers to appreciate their structure and crucial assumptions. This is particularly useful at a time when the literature on income distribution and

growth has developed quickly and in several different directions, becoming difficult to overview.

The World Economic Outlook (WEO) is a key source of forecasts of global economic conditions. It is therefore important to review the performance of these forecasts against both actual outcomes and alternative forecasts. This paper conducts a series of statistical tests to evaluate the quality of the WEO forecasts for a very large cross section of countries, with particular emphasis on the recent recession and recovery. It assesses whether forecasts were unbiased and informationally efficient, and characterizes the process whereby WEO forecasts get revised as the time to the point of the forecast draws closer. Finally, the paper assesses whether forecasts can be improved by combining WEO forecasts with the Consensus forecasts. The results suggest that the performance of the WEO forecasts is similar to that of the Consensus forecasts. While WEO forecasts for many variables in many countries meet basic quality standards in some, if not all, dimensions, the paper raises a number of concerns with current forecasting performance.

This book proposes a new capital asset pricing model dubbed the ZCAPM that outperforms other popular models in empirical tests using US stock returns. The ZCAPM is derived from Fischer Black's well-known zero-beta CAPM, itself a more general form of the famous capital asset pricing model (CAPM) by 1990 Nobel Laureate William Sharpe and others. It is widely accepted that the CAPM has failed in its theoretical relation between market beta risk and average stock returns, as numerous studies have shown that it does not work in the real world with empirical stock return data. The upshot of the CAPM's failure is that many new factors have been proposed by researchers. However, the number of factors proposed by authors has steadily increased into the hundreds over the past three decades. This new ZCAPM is a path-breaking asset pricing model that is shown to outperform popular models currently in practice in finance across different test assets and time periods. Since asset pricing is central to the field of finance, it can be broadly employed across many areas, including investment analysis, cost of equity analyses, valuation, corporate decision making, pension portfolio management, etc. The ZCAPM represents a revolution in finance that proves the CAPM as conceived by Sharpe and others is alive and well in a new form, and will certainly be of interest to academics, researchers, students, and professionals of finance, investing, and economics. James W. Kolari is the JP Morgan Chase Professor of Finance and Academic Director of the Commercial Banking Program in the Department of Finance at Texas A&M University, USA. Wei Liu is Senior Quantitative Analyst for USAA Bank with duties building and implementing models for bank stress tests, marketing programs, and credit risk analyses. Jianhua Z. Huang is a Professor of Statistics and Arseven/Mitchell Chair in Astronomical Statistics in the Department of Statistics at Texas A&M University, USA. .

The global financial crisis triggered severe shocks for developing countries,

whose embrace of greater commercial and financial openness has increased their exposure to external shocks, both real and financial. This new edition of *Development Macroeconomics* has been fully revised to address the more open and less stable environment in which developing countries operate today. Describing the latest advances in this rapidly changing field, the book features expanded coverage of public debt and the management of capital inflows as well as new material on fiscal discipline, monetary policy regimes, currency, banking and sovereign debt crises, currency unions, and the choice of an exchange-rate regime. A new chapter on dynamic stochastic general equilibrium (DSGE) models with financial frictions has been added to reflect how the financial crisis has reshaped our thinking on the role of such frictions in generating and propagating real and financial shocks. The book also discusses the role of macroprudential regulation, both independently and through its interactions with monetary policy, in preserving financial and macroeconomic stability. Now in its fourth edition, *Development Macroeconomics* remains the definitive textbook on the macroeconomics of developing countries. The most authoritative book on the subject—now fully revised and expanded Features new material on fiscal discipline, monetary policy regimes, currency, banking and sovereign debt crises, and much more Comes with online supplements on informal financial markets, stabilization programs, the solution of DSGE models with financial frictions, and exchange rate crises

Suitable for students and researchers seeking coverage of the developments in macroeconomics, this title lays out the core ideas of modern macroeconomics and its links with finance. It presents the simplest general equilibrium macroeconomic model for a closed economy, and then gradually develops a comprehensive model of the open economy.

Argues that public finance--the study of the government's role in economics--should incorporate principles from behavior economics and other branches of psychology.

This book originated from a 2010 conference marking the fortieth anniversary of the publication of the landmark "Phelps volume," *Microeconomic Foundations of Employment and Inflation Theory*, a book that is often credited with pioneering the currently dominant approach to macroeconomic analysis. However, in their provocative introductory essay, Roman Frydman and Edmund Phelps argue that the vast majority of macroeconomic and finance models developed over the last four decades derailed, rather than built on, the Phelps volume's "microfoundations" approach. Whereas the contributors to the 1970 volume recognized the fundamental importance of according market participants' expectations an autonomous role, contemporary models rely on the rational expectations hypothesis (REH), which rules out such a role by design. The financial crisis that began in 2007, preceded by a spectacular boom and bust in asset prices that REH models implied could never happen, has spurred a quest for fresh approaches to macroeconomic analysis. While the alternatives to REH

presented in *Rethinking Expectations* differ from the approach taken in the original Phelps volume, they are notable for returning to its major theme: understanding aggregate outcomes requires according expectations an autonomous role. In the introductory essay, Frydman and Phelps interpret the various efforts to reconstruct the field--some of which promise to chart its direction for decades to come. The contributors include Philippe Aghion, Sheila Dow, George W. Evans, Roger E. A. Farmer, Roman Frydman, Michael D. Goldberg, Roger Guesnerie, Seppo Honkapohja, Katarina Juselius, Enisse Kharroubi, Blake LeBaron, Edmund S. Phelps, John B. Taylor, Michael Woodford, and Gylfi Zoega.

The revised edition of the essential resource on macroeconometrics *Structural Macroeconometrics* provides a thorough overview and in-depth exploration of methodologies, models, and techniques used to analyze forces shaping national economies. In this thoroughly revised second edition, David DeJong and Chetan Dave emphasize time series econometrics and unite theoretical and empirical research, while taking into account important new advances in the field. The authors detail strategies for solving dynamic structural models and present the full range of methods for characterizing and evaluating empirical implications, including calibration exercises, method-of-moment procedures, and likelihood-based procedures, both classical and Bayesian. The authors look at recent strides that have been made to enhance numerical efficiency, consider the expanded applicability of dynamic factor models, and examine the use of alternative assumptions involving learning and rational inattention on the part of decision makers. The treatment of methodologies for obtaining nonlinear model representations has been expanded, and linear and nonlinear model representations are integrated throughout the text. The book offers a rich array of implementation algorithms, sample empirical applications, and supporting computer code. *Structural Macroeconometrics* is the ideal textbook for graduate students seeking an introduction to macroeconomics and econometrics, and for advanced students pursuing applied research in macroeconomics. The book's historical perspective, along with its broad presentation of alternative methodologies, makes it an indispensable resource for academics and professionals.

A groundbreaking, authoritative introduction to how machine learning can be applied to asset pricing Investors in financial markets are faced with an abundance of potentially value-relevant information from a wide variety of different sources. In such data-rich, high-dimensional environments, techniques from the rapidly advancing field of machine learning (ML) are well-suited for solving prediction problems. Accordingly, ML methods are quickly becoming part of the toolkit in asset pricing research and quantitative investing. In this book, Stefan Nagel examines the promises and challenges of ML applications in asset pricing. Asset pricing problems are substantially different from the settings for which ML tools were developed originally. To realize the potential of ML methods, they must be adapted for the specific conditions in asset pricing applications. Economic considerations, such as portfolio optimization, absence of near arbitrage, and investor learning can guide the selection and

modification of ML tools. Beginning with a brief survey of basic supervised ML methods, Nagel then discusses the application of these techniques in empirical research in asset pricing and shows how they promise to advance the theoretical modeling of financial markets. Machine Learning in Asset Pricing presents the exciting possibilities of using cutting-edge methods in research on financial asset valuation.

Can every allocation in the core of an economy be decentralized by a suitably chosen price system? Werner Hildenbrand shows that the answer is yes if the economy has "many" participating agents and if the influence of every individual agent on collective actions is "negligible." To give a general and precise definition of economics with this property he considers both economies with a continuum of agents, and a sequence of economies with an increasing number of participants. In both cases this leads to a measure theoretic formulation of economic equilibrium analysis. In the first part of the book the relevant mathematics is developed. In the second part the continuity and convexity properties of the total demand of a consumption sector are investigated. An important result is the equivalence between the core and the set of Walras equilibria for an exchange economy with a continuum of agents. The author then deals with limit theorems on the core for purely competitive sequences of exchange economies. In the last chapter the core and the set of Walras equilibria for a coalition production economy and the relation between these two equilibrium concepts are studied. Originally published in 1974. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

In *Volatility and Correlation 2nd edition: The Perfect Hedger and the Fox*, Rebonato looks at derivatives pricing from the angle of volatility and correlation. With both practical and theoretical applications, this is a thorough update of the highly successful *Volatility & Correlation* – with over 80% new or fully reworked material and is a must have both for practitioners and for students. The new and updated material includes a critical examination of the 'perfect-replication' approach to derivatives pricing, with special attention given to exotic options; a thorough analysis of the role of quadratic variation in derivatives pricing and hedging; a discussion of the informational efficiency of markets in commonly-used calibration and hedging practices. Treatment of new models including Variance Gamma, displaced diffusion, stochastic volatility for interest-rate smiles and equity/FX options. The book is split into four parts. Part I deals with a Black world without smiles, sets out the author's 'philosophical' approach and covers deterministic volatility. Part II looks at smiles in equity and FX worlds. It begins with a review of relevant empirical information about smiles, and provides coverage of local-stochastic-volatility, general-stochastic-volatility, jump-diffusion and Variance-Gamma processes. Part II concludes with an important chapter that discusses if and to what extent one can dispense with an explicit specification of a model, and can directly prescribe the dynamics of the smile surface. Part III focusses on interest rates when the volatility is deterministic. Part IV extends this setting in order to account for smiles in a financially motivated and computationally tractable manner. In this final part the author deals with CEV processes, with diffusive stochastic volatility and with Markov-chain processes. Praise for the First Edition: "In this book, Dr Rebonato brings his penetrating eye to bear on option pricing and hedging.... The book is a must-read for those who already know the basics of options and are looking for an edge in applying the more sophisticated approaches that have recently been developed." —Professor Ian Cooper, London Business School "Volatility and correlation are at the very core of all option pricing and hedging. In this book, Riccardo

Rebonato presents the subject in his characteristically elegant and simple fashion...A rare combination of intellectual insight and practical common sense." —Anthony Neuberger, London Business School

Economic forecasting involves choosing simple yet robust models to best approximate highly complex and evolving data-generating processes. This poses unique challenges for researchers in a host of practical forecasting situations, from forecasting budget deficits and assessing financial risk to predicting inflation and stock market returns. *Economic Forecasting* presents a comprehensive, unified approach to assessing the costs and benefits of different methods currently available to forecasters. This text approaches forecasting problems from the perspective of decision theory and estimation, and demonstrates the profound implications of this approach for how we understand variable selection, estimation, and combination methods for forecasting models, and how we evaluate the resulting forecasts. Both Bayesian and non-Bayesian methods are covered in depth, as are a range of cutting-edge techniques for producing point, interval, and density forecasts. The book features detailed presentations and empirical examples of a range of forecasting methods and shows how to generate forecasts in the presence of large-dimensional sets of predictor variables. The authors pay special attention to how estimation error, model uncertainty, and model instability affect forecasting performance. Presents a comprehensive and integrated approach to assessing the strengths and weaknesses of different forecasting methods Approaches forecasting from a decision theoretic and estimation perspective Covers Bayesian modeling, including methods for generating density forecasts Discusses model selection methods as well as forecast combinations Covers a large range of nonlinear prediction models, including regime switching models, threshold autoregressions, and models with time-varying volatility Features numerous empirical examples Examines the latest advances in forecast evaluation Essential for practitioners and students alike

Karl Marx predicted a world in which technical innovation would increasingly devalue and impoverish workers, but other economists thought the opposite, that it would lead to increased wages and living standards--and the economists were right. Yet in the last three decades, the market economy has been jeopardized by a worrying phenomenon: a rise in wage inequality that has left a substantial portion of the workforce worse off despite the continuing productivity growth enjoyed by the economy. *Innovation and Inequality* examines why. Studies have firmly established a link between this worrying trend and technical change, in particular the rise of new information technologies. In *Innovation and Inequality*, Gilles Saint-Paul provides a synthetic theoretical analysis of the most important mechanisms by which technical progress and innovation affect the distribution of income. He discusses the conditions under which skill-biased technical change may reduce the wages of the least skilled, and how improvements in information technology allow "superstars" to increase the scale of their activity at the expense of less talented workers. He shows how the structure of demand changes as the economy becomes wealthier, in ways that may potentially harm the poorest segments of the workforce and economy. An essential text for graduate students and an indispensable resource for researchers, *Innovation and Inequality* reveals how different categories of workers gain or lose from innovation, and how that gain or loss crucially depends on the nature of the innovation. Greater data availability has been coupled with developments in statistical theory and economic theory to allow more elaborate and complicated models to be entertained. These include factor models, DSGE models, restricted vector autoregressions, and non-linear models.

Economic Forecasting Princeton University Press

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