Econometric Approach To Efficiency Analysis | 75066c9243216f8c493e8be0028f6178

The Econometrics of Panel Data
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Panel Data Econometrics
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Essays on Microeconomics and Industrial Organisation
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Analysis Advanced Robust and Nonparametric Methods in Efficiency Analysis
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The Econometrics of Panel Data

This proceedings volume examines the state-of-the-art of productivity and efficiency analysis and adds to the existing research by bringing together a selection of the best papers from the 8th North American Productivity Workshop (NAPW). It also aims to analyze world-wide perspectives on challenges that local economies and institutions may face when changes in productivity are observed. The volume comprises of seventeen papers that deal with productivity measurement, productivity growth, dynamics of productivity change, measures of labor productivity, measures of technical efficiency in different sectors, frontier analysis, measures of performance, industry instability and spillover effects. These papers are relevant to academia, but also to public and private sectors in terms of the challenges firms, financial institutions, governments and individuals may face when dealing with economic and education related activities that lead to increase or decrease of productivity. The North American Productivity Workshop brings together academic scholars and practitioners in the field of productivity and efficiency analysis from all over the world. It is a four day conference exploring topics related to productivity, production theory and efficiency measurement in economics, management science, operations research, public administration, and related fields. The papers in this volume also address general topics as health, energy, finance, agriculture, utilities, and economic development, among others. The editors are comprised of the 2014 local organizers, program committee members, and celebrated guest conference speakers.

Springer Handbook of Science and Technology Indicators

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 Bjørn, 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.

Panel Data Econometrics

This textbook introduces essential topics and techniques in production and efficiency analysis and shows how to apply these methods using the statistical software R. Numerous small simulations lead to a deeper understanding of random processes assumed in the models and of the behavior of estimation techniques. Step-by-step programming provides an understanding of advanced approaches such as stochastic frontier analysis.
and stochastic data envelopment analysis. The text is intended for master students interested in empirical production and efficiency analysis. Readers are assumed to have a general background in production economics and econometrics, typically taught in introductory microeconomics and econometrics courses.

**The Econometrics of Panel Data**

When Harold Fried, et al. published *The Measurement of Productive Efficiency: Techniques and Applications* with OUP in 1993, the book received a great deal of professional interest for its accessible treatment of the rapidly growing field of efficiency and productivity analysis. The first several chapters, providing the background, motivation, and theoretical foundations for this topic, were the most widely recognized. In this tight, direct update, these same editors have compiled over ten years of the most recent research in this changing field, and expanded on those seminal chapters. The book will guide readers from the basic models to the latest, cutting-edge extensions, and will be reinforced by references to classic and current theoretical and applied research. It is intended for professors and graduate students in a variety of fields, ranging from economics to agricultural economics, business administration, management science, and public administration. It should also appeal to public servants and policy makers engaged in business performance analysis or regulation.

**A Practitioner's Guide to Stochastic Frontier Analysis Using Stata**

This proceedings volume examines the state-of-the art of productivity and efficiency analysis and adds to the existing research by bringing together a selection of the best papers from the 8th North American Productivity Workshop (NAPW). It also aims to analyze world-wide perspectives on challenges that local economies and institutions may face when changes in productivity are observed. The volume comprises of seventeen papers that deal with productivity measurement, productivity growth, dynamics of productivity change, measures of labor productivity, measures of technical efficiency in different sectors, frontier analysis, measures of performance, industry instability and spillover effects. These papers are relevant to academia, but also to public and private sectors in terms of the challenges firms, financial institutions, governments and individuals may face when dealing with economic and education related activities that lead to increase or decrease of productivity. The North American Productivity Workshop brings together academic scholars and practitioners in the field of productivity and efficiency analysis from all over the world. It is a four day conference exploring topics related to productivity, production theory and efficiency measurement in economics, management science, operations research, public administration, and related fields. The papers in this volume also address general topics as health, energy, finance, agriculture, utilities, and economic development, among others. The editors are comprised of the 2014 local organizers, program committee members, and celebrated guest conference speakers.

**Benchmarking for Performance Evaluation**

Health, The Medical Profession, and Regulation presents new evidence concerning health and the environment, inequality of health in many countries, and the compatibility of different quality of life measurements, along with new solutions to problems of health policy. The book is grouped into three sections. Section I, comprising six papers, looks into the determinants of people's health. Section II consists of three papers and deals with the supply side of the market for health care services. Finally, Section III contains three contributions devoted to health regulation. The intended market for this volume includes, but is not limited to, health economists, policy makers, insurers, and governmental advisors who need to stay abreast of the latest developments in health services research worldwide.

**Essays on Microeconomics and Industrial Organisation**

Using the neo-classical theory of production economics as the analytical framework, this book, first published in 2004, provides a unified and easily comprehensible, yet fairly rigorous, exposition of the core literature on data envelopment analysis (DEA) for readers based in different disciplines. The various DEA models are developed as nonparametric alternatives to the econometric models. Apart from the standard fare consisting of the basic input- and output-oriented DEA models formulated by Charnes, Cooper, and Rhodes, and Banker, Charnes, and Cooper, the book covers developments such as the directional distance function, free disposal hull (FDH) analysis, non-radial measures of efficiency, multiplier bounds, mergers and break-up of firms, and measurement of productivity change through the Malmquist total factor productivity index. The chapter on efficiency measurement using market prices provides the critical link between DEA and the neo-classical theory of a competitive firm. The book also covers several forms of stochastic DEA in detail.

**Health System Efficiency**

The aim of this volume is to provide a general overview of the econometrics of panel data, both from a theoretical and from an applied viewpoint. Since the pioneering papers by Edwin Kuh (1959), Yair Mundlak (1961), Irving Hoch (1962), and Pietro Balestra and Marc Nerlove (1966), the pooling of cross sections and time
series data has become an increasingly popular way of quantifying economic relationships. Each series provides information lacking in the other, so a combination of both leads to more accurate and reliable results than would be achievable by one type of series alone. Over the last 30 years much work has been done: investigation of the properties of the applied estimators and test statistics, analysis of dynamic models and the effects of eventual measurement errors, etc. These are just some of the problems addressed by this work. In addition, some specific difficulties associated with the use of panel data, such as attrition, heterogeneity, selectivity bias, pseudo panels etc., have also been explored. The first objective of this book, which takes up Parts I and II, is to give as complete and up-to-date a presentation of these theoretical developments as possible. Part I is concerned with classical linear models and their extensions; Part II deals with nonlinear models and related issues: logit and probit models, latent variable models, duration and count data models, incomplete panels and selectivity bias, point processes, and simulation techniques.

International Journal of Production Economics

Econometric Analysis of Model Selection and Model Testing

This book provides practitioners with a step-by-step guide on how to conduct efficiency analysis using the stochastic frontier approach.

International Applications of Productivity and Efficiency Analysis

Although the theme of the monograph is primarily related to “Applied Econometrics”, there are several theoretical contributions that are associated with empirical examples, or directions in which the novel theoretical ideas might be applied. The monograph is associated with significant and novel contributions in theoretical and applied econometrics; economics; theoretical and applied financial econometrics; quantitative finance; risk; financial modeling; portfolio management; optimal hedging strategies; theoretical and applied statistics; applied time series analysis; forecasting; applied mathematics; energy economics; energy finance; tourism research; tourism finance; agricultural economics; informatics; data mining; bibliometrics; and international rankings of journals and academics.

Advanced Robust and Nonparametric Methods in Efficiency Analysis

Essays on Microeconomics and Industrial Organisation aim to serve as a source and work of reference and consultation for the field of Microeconomics in general and of Industrial Organisation in particular. Traditionally, Microeconomics is essentially taught as theory and hardly ever an estimation of a demand, production and cost function is offered. Over the last two decades, however, Microeconomics has greatly broadened its field of empirical application. Therefore, this text combines microeconomic theories with a variety of empirical cases. The standardised microeconomic analysis of demand, production and costs is set forth along with appropriate econometric techniques. The text consists of four parts: Demand, Production and Costs (Supply), Market and Industrial Structure and Failure of Market and Industrial Regulation. It includes eleven new chapters with respect to the first edition.

Econometrics and the Philosophy of Economics

This handbook presents the state of the art of quantitative methods and models to understand and assess the science and technology system. Focusing on various aspects of the development and application of indicators derived from data on scholarly publications, patents and electronic communications, the individual chapters, written by leading experts, discuss theoretical and methodological issues, illustrate applications, highlight their policy context and relevance, and point to future research directions. A substantial portion of the book is dedicated to detailed descriptions and analyses of data sources, presenting both traditional and advanced approaches. It addresses the main bibliographic metrics and indexes, such as the journal impact factor and the h-index, as well as altmetric and webometric indicators and science mapping techniques on different levels of aggregation and in the context of their value for the assessment of research performance as well as their impact on research policy and society. It also presents and critically discusses various national research evaluation systems. Complementing the sections reflecting on the science system, the technology section includes multiple chapters that explain different aspects of patent statistics, patent classification and database search methods to retrieve patent-related information. In addition, it examines the relevance of trademarks and standards as additional technological indicators. The Springer Handbook of Science and Technology Indicators is an invaluable resource for practitioners, scientists and policy makers wanting a systematic and thorough analysis of the potential and limitations of the various approaches to assess research and research performance.

The Measurement of Productive Efficiency
Annotation Options and guidelines for measuring the efficiency of recently privatized utilities (electricity, gas, water, sewerage, telecommunications, airports, ports, rail).

**Measuring Efficiency in Health Care**

This is the essential companion to Jeffrey Wooldridge's widely-used graduate text Econometric Analysis of Cross Section and Panel Data (MIT Press, 2001). Already established as a leading graduate econometrics text, the book offers an intuitive yet rigorous treatment of two methods used in econometric research, cross section and panel data techniques. The numerous end-of-chapter problems are an important component of the book, encouraging the student to use the analytical tools presented in the text. This manual contains answers to selected problems, new examples, and supplementary materials designed by the author. Users of the textbook will find the manual a necessary adjunct to the book.

**Financial, Macro and Micro Econometrics Using R**

In this book the authors explore the state of the art on efficiency measurement in health systems and international experts offer insights into the pitfalls and potential associated with various measurement techniques. The authors show that: - The core idea of efficiency is easy to understand in principle - maximizing valued outputs relative to inputs, but is often difficult to make operational in real-life situations - There have been numerous advances in data collection and availability, as well as innovative methodological approaches that give valuable insights into how efficiently health care is delivered - Our simple analytical framework can facilitate the development and interpretation of efficiency indicators.

**Econometric Analysis of Cross Section and Panel Data**

This book provides an engaging, comprehensive review of health economics, with a focus on policy implications in the developed and developing world. Authoritative, but non-technical, it stresses the wide reach of the discipline - across nations, health systems, and areas within health and medical care.

**Applied Econometrics**

This book proposes a new methodology for the selection of one (model) from among a set of alternative econometric models. Let us recall that a model is an abstract representation of reality which brings out what is relevant to a particular economic issue. An econometric model is also an analytical characterization of the joint probability distribution of some random variables of interest, which yields some information on how the actual economy works. This information will be useful only if it is accurate and precise; that is, the information must be far from ambiguous and close to what we observe in the real world. Thus, model selection should be performed on the basis of statistics which summarize the degree of accuracy and precision of each model. A model is accurate if it predicts right; it is precise if it produces tight confidence intervals. A first general approach to model selection includes those procedures based on both characteristics, precision and accuracy. A particularly interesting example of this approach is that of Hildebrand, Laing and Rosenthal (1980). See also Hendry and Richard (1982). A second general approach includes those procedures that use only one of the two dimensions to discriminate among models. In general, most of the tests we are going to examine correspond to this category.

**Productivity and Efficiency Analysis**

Panel Data Econometrics: Theory introduces econometric modelling. Written by experts from diverse disciplines, the volume uses longitudinal datasets to illuminate applications for a variety of fields, such as banking, financial markets, tourism and transportation, auctions, and experimental economics. Contributors emphasize techniques and applications, and they accompany their explanations with case studies, empirical exercises and supplementary code in R. They also address panel data analysis in the context of productivity and efficiency analysis, where some of the most interesting applications and advancements have recently been made. Provides a vast array of empirical applications useful to practitioners from different application environments. Accompanied by extensive case studies and empirical exercises. Includes empirical chapters accompanied by supplementary code in R, helping researchers replicate findings. Represents an accessible resource for diverse industries, including health, transportation, tourism, economic growth, and banking, where researchers are not always econometrics experts.

**Econometric Model Selection**

This book provides a coherent description of the main concepts and statistical methods used to analyse economic performance. The focus is on measures of performance that are of practical relevance to policy makers. Most, if not all, of these measures can be viewed as measures of productivity and/or efficiency. Linking fields as diverse as index number theory, data envelopment analysis and stochastic frontier analysis,
Get Free Econometric Approach To Efficiency Analysis

the book explains how to compute measures of input and output quantity change that are consistent with measurement theory. It then discusses ways in which meaningful measures of productivity change can be decomposed into measures of technical progress, environmental change, and different types of efficiency change. The book is aimed at graduate students, researchers, statisticians, accountants and economists working in universities, regulatory authorities, government departments and private firms. The book contains many numerical examples. Computer codes and datasets are available on a companion website.

Productivity and Efficiency Analysis

This book develops econometric techniques for the estimation of production, cost and profit frontiers, and for the estimation of the technical and economic efficiency with which producers approach these frontiers. Since these frontiers envelop rather than intersect the data, and since the authors continue to maintain the traditional econometric belief in the presence of external forces contributing to random statistical noise, the work is titled Stochastic Frontier Analysis. Hb ISBN (2000): 0-521-48184-8

Stochastic Frontier Analysis

This work focuses on measuring and explaining producer performance. The authors view performance as a function of the state of technology and economic efficiency, with the former defining a frontier relation between inputs and outputs; the former incorporating waste and misallocation relative to this frontier. They show that insights can be gained by allowing for the possibility of a divergence between the economic objective and actual performance, and by associating this inefficiency with causal variables subject to managerial or policy influence. Derived from a series of lectures held on techniques and applications of the three approaches to the construction of production frontiers and measure of efficiency, this work will be an essential reference to scholars of a variety of disciplines who are involved with quantitative methods or policy.

The Oxford Handbook of Health Economics

Want to tap the power behind search rankings, product recommendations, social bookmarking, and online matchmaking? This fascinating book demonstrates how you can build Web 2.0 applications to mine the enormous amount of data created by people on the Internet. With the sophisticated algorithms in this book, you can write smart programs to access interesting datasets from other web sites, collect data from users of your own applications, and analyze and understand the data once you've found it. Programming Collective Intelligence takes you into the world of machine learning and statistics, and explains how to draw conclusions about user experience, marketing, personal tastes, and human behavior in general -- all from information that you and others collect every day. Each algorithm is described clearly and concisely with code that can immediately be used on your web site, blog, Wiki, or specialized application. This book explains: Collaborative filtering techniques that enable online retailers to recommend products or media Methods of clustering to detect groups of similar items in a large dataset Search engine features -- crawlers, indexers, query engines, and the PageRank algorithm Optimization algorithms that search millions of possible solutions to a problem and choose the best one Bayesian filtering, used in spam filters for classifying documents based on word types and other features Using decision trees not only to make predictions, but to model the way decisions are made Predicting numerical values rather than classifications to build price models Support vector machines to match people in online dating sites Non-negative matrix factorization to find the independent features in a dataset Evolving intelligence for problem solving -- how a computer develops its skill by improving its own code the more it plays a game Each chapter includes exercises for extending the algorithms to make them more powerful. Go beyond simple database-backed applications and put the wealth of Internet data to work for you. "Bravo! I cannot think of a better way for a developer to first learn these algorithms and methods, nor can I think of a better way for me (an old AI dog) to reinvigorate my knowledge of the details." -- Dan Russell, Google "Toby's book does a great job of breaking down the complex subject matter of machine-learning algorithms into practical, easy-to-understand examples that can be directly applied to analysis of social interaction across the Web today. If I had this book two years ago, it would have saved precious time going down some fruitless paths." -- Tim Wolters, CTO, Collective Intellect

The Measurement of Productive Efficiency and Productivity Growth

In recent years econometricians have examined the problems of diagnostic testing, specification testing, semiparametric estimation and model selection. In addition researchers have considered whether to use model testing and model selection procedures to decide the models that best fit a particular dataset. This book explores both issues with application to various regression models, including the arbitrage pricing theory models. It is ideal as a reference for statistical sciences postgraduate students, academic researchers and policy makers in understanding the current status of model building and testing techniques.

New Directions in Productivity Measurement and Efficiency Analysis

With the healthcare sector accounting for a sizeable proportion of national expenditures, the pursuit of
efficiency has become a central objective of policymakers within most health systems. However, the analysis and measurement of efficiency is a complex undertaking, not least due to the multiple objectives of health care organizations and the many gaps in information systems. In response to this complexity, research in organizational efficiency analysis has flourished. This 2006 book examines some of the most important techniques currently available to measure the efficiency of systems and organizations, including data envelopment analysis and stochastic frontier analysis, and also presents some promising new methodological approaches. Such techniques offer the prospect of many new and fruitful insights into health care performance. Nevertheless, they also pose many practical and methodological challenges. This is an important critical assessment of the strengths and limitations of efficiency analysis applied to health and health care.

A Primer on Efficiency Measurement for Utilities and Transport Regulators

Provides a comprehensive approach to productivity and efficiency analysis using economic and econometric theory.

Panel Data Econometrics

This book provides a detailed introduction to the theoretical and methodological foundations of production efficiency analysis using benchmarking. Two of the more popular methods of efficiency evaluation are Stochastic Frontier Analysis (SFA) and Data Envelopment Analysis (DEA), both of which are based on the concept of a production possibility set and its frontier. Depending on the assumed objectives of the decision-making unit, a Production, Cost, or Profit Frontier is constructed from observed data on input and output quantities and prices. While SFA uses different maximum likelihood estimation techniques to estimate a parametric frontier, DEA relies on mathematical programming to create a nonparametric frontier. Yet another alternative is the Convex Nonparametric Frontier, which is based on the assumed convexity of the production possibility set and creates a piecewise linear frontier consisting of a number of tangent hyper planes. Three of the papers in this volume provide a detailed and relatively easy to follow exposition of the underlying theory from neoclassical production economics and offer step-by-step instructions on the appropriate model to apply in different contexts and how to implement them. Of particular appeal are the instructions on (i) how to write the codes for different SFA models on STATA, (ii) how to write a VBA Macro for repetitive solution of the DEA problem for each production unit on Excel Solver, and (iii) how to write the codes for the Nonparametric Convex Frontier estimation. The three other papers in the volume are primarily theoretical and will be of interest to PhD students and researchers hoping to make methodological and conceptual contributions to the field of nonparametric efficiency analysis.

Production and Efficiency Analysis with R

This restructured, updated Third Edition provides a general overview of the econometrics of panel data, from both theoretical and applied viewpoints. Readers discover how econometric tools are used to study organizational and household behaviors as well as other macroeconomic phenomena such as economic growth. The book contains sixteen entirely new chapters; all other chapters have been revised to account for recent developments. With contributions from well known specialists in the field, this handbook is a standard reference for all those involved in the use of panel data in econometrics.

Applications of Modern Production Theory

This book presents a mathematical programming approach to the analysis of production frontiers and efficiency measurement. The authors construct a variety of production frontiers, and by measuring distances to them are able to develop a model of efficient producer behaviour and a taxonomy of possible types of departure from efficiency in various environments. Linear programming is used as an analytical and computational technique in order to accomplish this. The approach developed is then applied to modelling producer behaviour. By focusing on the empirical relevance of production frontiers and distances to them, and applying linear programming techniques to artificial data to illustrate the type of information they can generate, this book provides a unique study in applied production analysis. It will be of interest to scholars and students of economics and operations research, and analysts in business and government.

The Measurement of Productive Efficiency

Providing a systematic and comprehensive treatment of recent developments in efficiency analysis, this book makes available an intuitive yet rigorous presentation of advanced nonparametric and robust methods, with applications for the analysis of economies of scale and scope, trade-offs in production and service activities, and explanations of efficiency differentials.

Nonparametric Econometric Methods and Application
Using data from several countries, including Cote d'Ivoire, India, Pakistan, Taiwan, and Thailand, this book analyzes household survey data from developing countries and illustrates how such data can be used to cast light on a range of short-term and long-term policy issues.

**An Introduction to Efficiency and Productivity Analysis**

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.

**Health, the Medical Profession, and Regulation**

Panel Data Econometrics: Empirical Applications introduces econometric modelling. Written by experts from diverse disciplines, the volume uses longitudinal datasets to illuminate applications for a variety of fields, such as banking, financial markets, tourism and transportation, auctions, and experimental economics. Contributors emphasize techniques and applications, and they accompany their explanations with case studies, empirical exercises and supplementary code in R. They also address panel data analysis in the context of productivity and efficiency analysis, where some of the most interesting applications and advancements have recently been made. Provides a vast array of empirical applications useful to practitioners from different application environments Accompanied by extensive case studies and empirical exercises Includes empirical chapters accompanied by supplementary code in R, helping researchers replicate findings Represents an accessible resource for diverse industries, including health, transportation, tourism, economic growth, and banking, where researchers are not always econometrics experts.

**The Analysis of Household Surveys**

International Applications of Productivity and Efficiency Analysis features a complete range of techniques utilized in frontier analysis, including extensions of existing techniques and the development of new techniques. Another feature is that most of the contributions use panel data in a variety of approaches. Finally, the range of empirical applications is at least as great as the range of techniques, and many of the applications are of considerable policy relevance.

**Data Envelopment Analysis**

Financial, Macro and Micro Econometrics Using R, Volume 42, provides state-of-the-art information on important topics in econometrics, including multivariate GARCH, stochastic frontiers, fractional responses, specification testing and model selection, exogeneity testing, causal analysis and forecasting, GMM models, asset bubbles and crises, corporate investments, classification, forecasting, nonstandard problems, cointegration, financial market jumps and co-jumps, among other topics. Presents chapters authored by distinguished, honored researchers who have received awards from the Journal of Econometrics or the Econometric Society Includes descriptions and links to resources and free open source R Gives readers what they need to jumpstart their understanding on the state-of-the-art.

**Programming Collective Intelligence**

This work focuses on measuring and explaining producer performance. The authors view performance as a function of the state of technology and economic efficiency, with the former defining a frontier relation between inputs and outputs; the former incorporating waste and misallocation relative to this frontier. They show that insights can be gained by allowing for the possibility of a divergence between the economic objective and actual performance, and by associating this inefficiency with causal variables subject to managerial or policy influence. Derived from a series of lectures held on techniques and applications of the three approaches to the construction of production frontiers and measure of efficiency, this work will be an essential reference to scholars of a variety of disciplines who are involved with quantitative methods or policy.

**Efficiency Analysis**

Efficiency Analysis details the important econometric area of efficiency estimation, both past approaches as well as new methodology. There are two main camps in efficiency analysis: that which estimates maximal output and attributes all departures from this as inefficiency, known as Data Envelopment Analysis (DEA), and that which allows for both unobserved variation in output due to shocks and measurement error as well as inefficiency, known as Stochastic Frontier Analysis (SFA). This volume focuses exclusively on SFA. The econometric study of efficiency analysis typically begins by constructing a convoluted error term that is...
composed on noise, shocks, measurement error, and a one-sided shock called inefficiency. Early in the
development of these methods, attention focused on the proposal of distributional assumptions which yielded
a likelihood function whereby the parameters of the distributional components of the convoluted error could be
recovered. The field evolved to the study of individual specific efficiency scores and the extension of these
methods to panel data. Recently, attention has focused on relaxing the stringent distributional assumptions
that are commonly imposed, relaxing the functional form assumptions commonly placed on the underlying
technology, or some combination of both. All told exciting and seminal breakthroughs have occurred in this
literature, and reviews of these methods are needed to effectively detail the state of the art. The generality of
SFA is such that the study of efficiency has gone beyond simple application of frontier methods to study firms
and appears across a diverse set of applied milieus. This review should appeal to those outside of the
efficiency literature seeking to learn about new methods which might assist them in uncovering phenomena in
their applied area of interest.

**Productivity and Efficiency Analysis**

This book explores novel research perspectives on the intersection of environmental/natural resource
economics and productivity analysis, emphasizing the link between productivity and efficiency measurement
and environmental impacts. The purpose of the book is to present new approaches and methods for measuring
environmentally adjusted productivity and efficiency, and for incorporating natural resources in standard
national accounting practices. These methods are applicable in many contexts, including air and water
pollution, climate change, green accounting, and environmental regulation

**Measurement of Productivity and Efficiency**

**Production Frontiers**

Softcover version of the second edition Hardcover. Incorporates a new author, Dr. Chris O'Donnell, who brings
considerable expertise to the project in the area of performance measurement. Numerous topics are being
added and more applications using real data, as well as exercises at the end of the chapters. Data sets,
computer codes and software will be available for download from the web to accompany the volume.

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