This edited collection presents recent developments, practical innovations, and policy reforms in the realm of microfinance in emerging markets. Microfinance has been hotly debated by ever-colliding camps of ardent supporters, who believe that microfinance addresses credit market failures and provides a durable answer to the problem of the poverty, and staunch critics, who argue that lending by microfinance institutions is wasteful, and the interest rates are too high. To bring further insight into this important debate, this book
presents comprehensive historical, political, and economic perspectives on the latest issues in microfinance. An impressive array of scholars and practitioners build a framework for thinking about regulation to drive sustainable, inclusive development. With case studies of programs in India, Ghana, and Bangladesh, and examinations of the effects of gender and religion on financial decision-making, this comprehensive collection offers something valuable to scholars, policymakers, and practitioners—anyone with a vested interest in promoting innovation in microfinance.

This book addresses the rising productivity gap between the global frontier and other firms, and identifies a number of structural impediments constraining business start-ups, knowledge diffusion and resource allocation (such as barriers to up-scaling and relatively high rates of skill mismatch).

Industrial Price, Quantity, and Productivity Indices: The Micro-Economic Theory and an Application gives a comprehensive account of the micro-economic foundations of industrial price, quantity, and productivity indices. The various results available from the literature have been brought together into a consistent framework, based upon modern duality theory. This integration also made it possible to generalize several of these results. Thus, this book will be an important resource for theoretically as well as empirically-oriented researchers who seek to analyse economic problems with the help of index numbers. Although this book's emphasis is on micro-economic theory, it is also intended as a practical guide. A full chapter is therefore devoted to an empirical application. Three different approaches are pursued: a straightforward empirical approach, a non-parametric estimation approach, and a parametric estimation approach. As well as illustrating some of the more important concepts explored in this book, and showing to what extent different computational approaches lead to different outcomes for the same measures, this chapter also makes a powerful case for the use of enterprise micro-data in economic research.

Productivity, Technology and Economic Growth presents a selection of recent research advances on long term economic growth. While the contributions stem from both economic history, macro- and microeconomics and the economics of innovation, all papers depart from a common viewpoint: the key factor behind long term growth is productivity, and the latter is primarily driven by technological change. Most contributions show
implicitly or explicitly that technological change is at least partly dependent on growth itself. Furthermore, technology appears to interact strongly with investment in physical and human capital as well as with changes in historical, political and institutional settings. Together these papers are an up-to-date account of the remarkable convergence in theoretical and empirical work on productivity and growth over the past decades. The first part deals with the characteristics of growth regimes over longer periods, ranging from 20 years to two centuries. The next four chapters study the determinants of productivity growth and, in some cases, productivity slowdown during the last quarter of the twentieth century. The final five chapters focus on the role of technology and innovation as the key determinants of growth. Productivity, Technology and Economic Growth is, therefore, a welcome collection for academic scholars and graduate students in economics, history and related social sciences as well as for policy makers.

Panel Data Econometrics with R provides a tutorial for using R in the field of panel data econometrics. Illustrated throughout with examples in econometrics, political science, agriculture and epidemiology, this book presents classic methodology and applications as well as more advanced topics and recent developments in this field including error component models, spatial panels and dynamic models. They have developed the software programming in R and host replicable material on the book’s accompanying website.

In a relatively short period of time, data envelopment analysis (DEA) has grown into a powerful analytical tool for measuring and evaluating performance. DEA is computational at its core and this book is one of several Springer aim to publish on the subject. This work deals with the micro aspects of handling and modeling data issues in DEA problems. It is a handbook treatment dealing with specific data problems, including imprecise data and undesirable outputs.

The productivity slowdown of the 1970s and 1980s and the resumption of productivity growth in the 1990s have provoked controversy among policymakers and researchers. Economists have been forced to reexamine fundamental questions of measurement technique. Some researchers argue that econometric approaches to productivity measurement usefully address shortcomings of the dominant index number techniques while others maintain that current productivity statistics underreport damage to the environment. In this book, the contributors propose innovative approaches to these issues. The result is a state-of-the-art exposition of
contemporary productivity analysis. Charles R. Hulten is professor of economics at the University of Maryland. He has been a senior research associate at the Urban Institute and is chair of the Conference on Research in Income and Wealth of the National Bureau of Economic Research. Michael Harper is chief of the Division of Productivity Research at the Bureau of Labor Statistics. Edwin R. Dean, formerly associate commissioner for Productivity and Technology at the Bureau of Labor Statistics, is adjunct professor of economics at The George Washington University.

Our original reason for writing this book was the desire to write down in one place a complete summary of the major results in duality theory pioneered by Ronald W. Shephard in three of his books, Cost and Production Functions (1953), Theory of Cost and Production Functions (1970), and Indirect Production Functions (1974). In this way, newcomers to the field would have easy access to these important ideas. In addition, we report a few new results of our own. In particular, we show the duality relationship between the profit function and the eight equivalent representations of technology that were elucidated by Shephard. However, in planning the book and discussing it with colleagues it became evident that such a book would be more useful if it also provided a number of applications of Shephard's duality theory to economic problems. Thus, we have also attempted to present examples of the use of duality theory in areas such as efficiency measurement, index number theory, shadow pricing, cost-benefit analysis, and econometric estimation. Much of our thinking about duality theory and its uses has been influenced by our present and former collaborators. They include Charles Blackorby, Shawna Grosskopf, Knox Lovell, Robert Russell, and, not surprisingly, Ronald W. Shephard. We have also benefited over the years from many discussions with W. Erwin Diewert.

This book analyzes how financial liberalization affected the development of the financial crisis in Europe, with particular attention given to the ways in which power asymmetries within Western Europe facilitated financial liberalization and distributed the costs and gains from it. The author combines institutional narrative analysis with empirical surveys and econometrics, as well as country-level studies of financial liberalization and its consequences before and after the 2008 Global Financial Crisis.
This book includes a spectrum of concepts, such as performance, productivity, operations research, econometrics, and data science, for the practically and theoretically important areas of ‘productivity analysis/data envelopment analysis’ and ‘data science/big data’. Data science is defined as the collection of scientific methods, processes, and systems dedicated to extracting knowledge or insights from data and it develops on concepts from various domains, containing mathematics and statistical methods, operations research, machine learning, computer programming, pattern recognition, and data visualisation, among others. Examples of data science techniques include linear and logistic regressions, decision trees, Naïve Bayesian classifier, principal component analysis, neural networks, predictive modelling, deep learning, text analysis, survival analysis, and so on, all of which allow using the data to make more intelligent decisions. On the other hand, it is without a doubt that nowadays the amount of data is exponentially increasing, and analysing large data sets has become a key basis of competition and innovation, underpinning new waves of productivity growth. This book aims to bring a fresh look onto the various ways that data science techniques could unleash value and drive productivity from these mountains of data. Researchers working in productivity analysis/data envelopment analysis will benefit from learning about the tools available in data science/big data that can be used in their current research analyses and endeavours. The data scientists, on the other hand, will also get benefit from learning about the plethora of applications available in productivity analysis/data envelopment analysis.

Praise for the Second Edition "All statistics students and teachers will find in this book afriendly and intelligentguide to . . . applied statistics inpractice." —Journal of Applied Statistics". . . a very engaging and valuable book for all who usestatistics in any setting." —CHOICE". . . a concise guide to the basics of statistics, replete withexamples . . . a valuablereference for more advanced statisticiansas well." —MAA Reviews Now in its Third Edition, the highly readable CommonErrors in Statistics (and How to Avoid Them) continues to serves a thorough and straightforward discussion of basic statisticalmethods, presentations, approaches, and modeling techniques. Further enriched with new examples and counterexamples from the latest research as well as added coverage of relevant topics, this new edition of the benchmark book addresses popular mistakes often made in data collection and provides an indispensable guide to accurate statistical analysis and reporting. The authors' emphasis on careful practice, combined with a focus on the development of solutions, reveals the true value of statistics when applied correctly in any area of research. The Third Edition has been considerably
expanded and revised to include: A new chapter on data quality assessment A new chapter on correlated data analysis covering categorical and ordinal data, continuous measurements, and time-to-event data, including sections on factorial and crossover designs. Revamped exercises with a stronger emphasis on solutions An extended chapter on report preparation New sections on factor analysis as well as Poisson and negative binomial regression. Providing valuable, up-to-date information in the same user-friendly format as its predecessor, Common Errors in Statistics (and How to Avoid Them), Third Edition is an excellent book for students and professionals in industry, government, medicine, and the social sciences.

The volume highlights the state-of-the-art knowledge (including data analysis) of productivity, inequality and efficiency analysis. It showcases a selection of the best papers from the 9th North American Productivity Workshop. These papers are relevant to academia, but also to public and private sectors in terms of the challenges that 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 volume also aims to bring together ideas from different parts of the world about the challenges those local economies and institutions may face when changes in productivity are observed. These contributions focus on theoretical and empirical research in areas including productivity, production theory and efficiency measurement in economics, management science, operation research, public administration, and education. The North American Productivity Workshop (NAPW) brings together academic scholars and practitioners in the field of productivity and efficiency analysis from all over the world, and this proceedings volume is a reflection of this mission. The papers in this volume also address general topics as education, health, energy, finance, agriculture, transport, utilities, and economic development, among others. The editors are comprised of the 2016 local organizers, program committee members, and celebrated guest conference speakers.

This book covers recent advances in efficiency evaluations, most notably Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) methods. It introduces the underlying theories, shows how to make the relevant calculations and discusses applications. The aim is to make the reader aware of the pros and cons of the different methods and to show how to use these methods in both standard and non-standard cases. Several software packages have been developed to solve some of the most common DEA and SFA models. This book relies on R, a free, open source software environment for statistical computing and graphics. This
enables the reader to solve not only standard problems, but also many other problem variants. Using R, one can focus on understanding the context and developing a good model. One is not restricted to predefined model variants and to a one-size-fits-all approach. To facilitate the use of R, the authors have developed an R package called Benchmarking, which implements the main methods within both DEA and SFA. The book uses mathematical formulations of models and assumptions, but it de-emphasizes the formal proofs - in part by placing them in appendices -- or by referring to the original sources. Moreover, the book emphasizes the usage of the theories and the interpretations of the mathematical formulations. It includes a series of small examples, graphical illustrations, simple extensions and questions to think about. Also, it combines the formal models with less formal economic and organizational thinking. Last but not least it discusses some larger applications with significant practical impacts, including the design of benchmarking-based regulations of energy companies in different European countries, and the development of merger control programs for competition authorities.

This Technical Note focuses on banking sector structure in Germany. Germany’s banking system comprises three “pillars”—private commercial banks, public sector banks, and cooperative banks—distinguished by the ownership structure and business orientation. The German banking system includes a large number of institutions in both absolute and relative terms. This note describes the evolution of Germany’s three-pillar banking system. It analyzes capitalization, credit and the intermediation of savings, and bank profitability and efficiency. It also examines the benefits of public involvement and governance in the banking system.

... is a voluminous and timely collection of 18 essays that addresses a number of core issues on the economics of education. ... An exhaustive survey of the literature on the role of universities as multi-product firms at various levels and disciplines identifies the nature of the economies of scope and scale. This enriches the volume further. Economic Analysis & Policy ... the endeavour of bringing together very knowledgeable contributors, including some of the leading contributors to the literature in the UK and beyond, to write a handbook on the economics of education is highly appreciated. The Handbook contains 18 substantive chapters, encapsulated by a brief introduction and an extensive and a very useful index. ... the Handbook should be praised as a useful overview of the field of economics of education as it stands today. Ludger Wößmann, Economic Issues This major Handbook comprehensively surveys the rapidly growing field of the
economics of education. It is unique in that it comprises original contributions on an exceptional range of topics from a review of human capital, signalling and screening models, to consideration of issues such as educational externalities and economic growth, funding models, determinants of educational success, the educational production function, educational standards and efficiency measurement. Labour market issues such as the market for teachers and the transition of students from school to work are also explored. The International Handbook on the Economics of Education will be warmly welcomed by academic economists, educational researchers and practitioners in educational management as well as policymakers. Comprising specially commissioned articles, the Handbook will become indispensable reference for this ever topical field of study.

Worldwide, postal and delivery economics is the subject of considerable interest. The postal industry’s business model is in drastic need of change. Notably, the European Commission and member states are still wrestling with the problems of implementing liberalization of entry into postal markets, addressing digital competition, and maintaining the universal service obligation. In the United States, the Postal Accountability and Enhancement Act of 2006 has, perhaps, exacerbated some of the problems faced by the United States Postal Service (USPS). Currently, the USPS has serious financial problems because of difficulties it faces in making changes and the failure of the Act to address problems that have been long-standing. Electronic competition is severe and affects post offices (POs) worldwide, which have been slow to address the threat. This book addresses this new reality and includes discussion of how POs may attempt to reinvent themselves. Parcels and packets will play a major role in developing new business models for postal operators. This book is of use not only to students and researchers interested in the field, but also to postal operators, consulting firms, utilities, regulatory commissions, Federal Government Departments and agencies of the European Union and other countries.

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

This volume systematically details both the basic principles and new developments in Data Envelopment
Analysis (DEA), offering a solid understanding of the methodology, its uses, and its potential. New material in this edition includes coverage of recent developments that have greatly extended the power and scope of DEA and have lead to new directions for research and DEA uses. Each chapter accompanies its developments with simple numerical examples and discussions of actual applications. The first nine chapters cover the basic principles of DEA, while the final seven chapters provide a more advanced treatment.

What are the challenges and action points for agricultural sustainability in Sub-Saharan Africa? This open access collection of papers offers technical analyses, policy recommendations and an overview of success stories to date. Each carefully selected paper provides valuable insights for improved policy making and defines relevant strategic priorities on Africa’s sustainable transformation process, which is in line with the international development agenda. Although agriculture remains the main source of income for Africa’s population, the sector is rain-fed subjecting it to the vagaries of weather and climate change. This volume demonstrates the rationale of developing a competitive, inclusive and sustainable agribusiness sector for Africa’s food security and structural transformation. From the impact of Bioenergy crop adoption and Drought Index Insurance to Agro-Industrialization, this volume is important reading for individual researchers, academic associations and professional bodies interested in African agricultural development.

This volume takes the child's environment (culture, education, family, peers and media) as an essential component of child development.

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.

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.

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.

International comparison of health system performance has become increasingly popular, made possible by the rapidly expanding availability of health data. It has become one of the most important levers for prompting health system reform. Yet, as the demand for transparency and accountability in healthcare increases, so too does the need to compare data from different health systems both accurately and meaningfully. This timely and authoritative book offers an important summary of the current developments in health system performance comparison. It summarises the current state of efforts to compare systems, and identifies and explores the practical and conceptual challenges that occur. It discusses data and methodological challenges, as well as broader issues such as the interface between evidence and practice. The book draws out the priorities for future work on performance comparison, in the development of data sources and measurement instruments, analytic methodology, and assessment of evidence on performance. It concludes by presenting the key lessons and future priorities, and in doing so offers a rich source of material for policy-makers, their analytic advisors, international agencies, academics and students of health systems.

This paper provides the first systematic study of how minimum wage policies in China affect firm employment over the 2000-2007 periods. Using a novel dataset of minimum wage regulations across more than 2,800 counties matched with firm-level data, we investigate both the effect of the minimum wage and its policy enforcement tightening in 2004. A dynamic panel (difference GMM) estimator is combined with a “neighbor-
pairs-approach” to control for unobservable heterogeneity common to “border counties” that are subject to different minimum wage changes. We show that minimum wage increases have a significant negative impact on employment, with an estimated elasticity of -0.1. Furthermore, we find a heterogeneous effect of the minimum wage on employment which depends on the firm’s wage level. Specifically, the minimum wage has a greater negative impact on employment in low-wage firms than in high-wage firms. Our results are robust for different treatment groups, sample attrition correction, and placebo tests.

This book presents the methodology and applications of Data Envelopment Analysis (DEA) in measuring productivity, efficiency and effectiveness in Financial Services firms such as banks, bank branches, stock markets, pension funds, mutual funds, insurance firms, credit unions, risk tolerance, and corporate failure prediction. Financial service DEA research includes banking; insurance businesses; hedge, pension and mutual funds; and credit unions. Significant business transactions among financial service organizations such as bank mergers and acquisitions and valuation of IPOs have also been the focus of DEA research. The book looks at the range of DEA uses for financial services by presenting prior studies, examining the current capabilities reflected in the most recent research, and projecting future new uses of DEA in finance related applications.

'. . . my opinion is that this book not only presents a wide and complete report of an extensive research effort, but also opens new directions for future research advancements in this field, that is very relevant both from theoretical considerations and policy-making implications.' Education Economics 'This book is the first work that brings together comprehensive evidence on research and education activities conducted in European universities. The volume is both timely (current discussion on the European Research Area is based on very poor quality comparative evidence) and important for scholars, practitioners, policymakers and students. It provides a critical assessment of the availability and use of input/output data and indicators to measure and map European higher education systems. At a time when universities are being asked to play an increasing number of roles, this book represents a foundation on which scholars and policymakers can start to develop the harmonised statistical infrastructure needed to evaluate, assess and support European universities in their changing roles.' Aldo Geuna, University of Sussex, UK Although the role of universities in the knowledge society is increasingly significant, there remains a severe lack of systematic quantitative evidence at the micro-level, with virtually all policy discussion based on country level statistics or case studies. This book redresses
the balance by examining original data from universities in six European countries Italy, Norway, Portugal, Spain, Switzerland and the UK. The authors provide micro-based evidence on the evolution of the strategic profile of universities in terms of scientific research, contract research, education and the third mission. The result is a highly innovative book that combines detailed national case studies and comparative institutional analyses with state-of-the-art quantitative techniques. Applying for the first time new generations of nonparametric efficiency measures on a large scale, Universities and Strategic Knowledge Creation will be of great interest to researchers and postgraduate students in higher education, economics of science and technology, and innovation studies. It will also appeal to policymakers and administrators in governments, ministries and universities.

Multinational Enterprises and Host Country Development is a unique collection of papers looking at different aspects of the link between multinational enterprises and their effects on the host countries' economies. The volume studies effects of multinationals on R&D, innovation, productivity, wages, as well as growth and survival of firms in the host countries, and distinguishes direct and indirect effects through spillovers. All the analyses are conducted using firm level data for countries as diverse as China, Ireland, Sweden, Ghana, the UK or a group of countries in Central and Eastern Europe. This volume is a valuable reading for graduate students and researchers wishing to investigate the impact of multinationals.

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.

This book presents a succinct overview of research on China's Energy Efficiency as studied by the Center for Energy & Environmental Policy Research (CEEP), Beijing Institute of Technology (BIT). Energy efficiency, linking energy supply, demand and market, is crucial to the world's energy development. China consumes one fourth of the world's energy currently, however its per capital consumption is no more than half of that in OECD countries. This book provides a comprehensive treatment of the situation of China's energy development, proposes and summarizes the methodologies of energy efficiency measurement, and uses these methods to analyze the energy consumption at sectoral and provincial level, the impacts of economic structure on the energy macro-efficiency, the price elasticity of oil demand, and energy efficiency policies simulations. The book provides scientific support for researchers and policy makers dealing with energy efficiency.

This book presents the underlying theory, model development, and applications of network Data Envelopment Analysis (DEA) in a systematic way. The field of network DEA extends and complements conventional DEA by considering not only inputs and outputs when measuring system efficiency, but also the internal structure of the system being analyzed. By analyzing the efficiency of individual internal components, and more particularly by studying the effects of relationships among components which are modeled and implemented by means of various network structures, the “network DEA” approach is able to help identify and manage the specific components that contribute inefficiencies into the overall systems. This relatively new approach comprises an important analytical tool based on mathematical programming techniques, with valuable implications to production and operations management. The existing models for measuring the efficiency of systems of specific network structures are also discussed, and the relationships between the system and component efficiencies are explored. This book should be able to inspire new research and new applications.
based on the current state of the art. Performance evaluation is an important task in management, and is needed to (i) better understand the past accomplishments of an organization and (ii) plan for its future development. However, this task becomes rather challenging when multiple performance metrics are involved. DEA is a powerful tool to cope with such issues. For systems or operations composed of interrelated processes, managers need to know how the performances of the various processes evaluated and how they are aggregated to form the overall performance of the system. This book provides an advanced exposition on performance evaluation of systems with network structures. It explores the network nature of most production and operation systems, and explains why network analyses are necessary.

The intensity of global competition and ever-increasing economic uncertainties has led organizations to search for more efficient and effective ways to manage their business operations. Data envelopment analysis (DEA) has been widely used as a conceptually simple yet powerful tool for evaluating organizational productivity and performance. Fuzzy DEA (FDEA) is a promising extension of the conventional DEA proposed for dealing with imprecise and ambiguous data in performance measurement problems. This book is the first volume in the literature to present the state-of-the-art developments and applications of FDEA. It is designed for students, educators, researchers, consultants and practicing managers in business, industry, and government with a basic understanding of the DEA and fuzzy logic concepts.

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.

A Practitioner's Guide to Stochastic Frontier Analysis Using Stata provides practitioners in academia and
industry with a step-by-step guide on how to conduct efficiency analysis using the stochastic frontier approach. The authors explain in detail how to estimate production, cost, and profit efficiency and introduce the basic theory of each model in an accessible way, using empirical examples that demonstrate the interpretation and application of models. This book also provides computer code, allowing users to apply the models in their own work, and incorporates the most recent stochastic frontier models developed in academic literature. Such recent developments include models of heteroscedasticity and exogenous determinants of inefficiency, scaling models, panel models with time-varying inefficiency, growth models, and panel models that separate firm effects and persistent and transient inefficiency. Immensely helpful to applied researchers, this book bridges the chasm between theory and practice, expanding the range of applications in which production frontier analysis may be implemented.

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