

## The Index Number Problem Construction Theorems

Although inflation is much feared for its negative effects on the economy, how to measure it is a matter of considerable debate that has important implications for interest rates, monetary supply, and investment and spending decisions. Underlying many of these issues is the concept of the Cost-of-Living Index (COLI) and its controversial role as the methodological foundation for the Consumer Price Index (CPI). Price Index Concepts and Measurements brings together leading experts to address the many questions involved in conceptualizing and measuring inflation. They evaluate the accuracy of COLI, a Cost-of-Goods Index, and a variety of other methodological frameworks as the bases for consumer price construction.

Macro Markets puts forward a unique and authoritative set of detailed proposals for establishing new markets for the management of the biggest economic risks facing society. Our existing financial markets are seen as being inadequate in dealing with such risks and Professor Shiller suggests major new markets as solutions to the problem. Shiller argues that although some risks, such as natural disaster or temporary unemployment, are shared by society, most risks are borne by the individual and standards of living determined by luck. He investigates whether a new technology of markets could make risk-sharing possible, and shows how new contracts could be designed to hedge all manner of risks to the individual's living standards. He proposes new international markets for perpetual claims on national incomes, and on components and aggregates of national incomes, concluding that these markets may well dwarf our stock markets in their activity and significance. He also argues for new liquid international markets for residential and commercial property. Establishing such unprecedented new markets presents some important technical problems which Shiller attempts to solve with proposals for implementing futures markets on perpetual claims on incomes, and for the construction of index numbers for cash settlement of risk management contracts. These new markets could fundamentally alter and diminish international economic fluctuations, and reduce the inequality of incomes around the world.

This volume addresses the search for a true price index, the need to know how to convert an amount at one date into the right amount at another date. The index number problem is the longstanding question concerning how such an index should be constructed.

The price index, a pervasive long established institution for economics, is a number issued by the Statistical Office that should tell anyone the ratio of costs of maintaining a given standard of living in two periods where prices differ. For a chain of three periods, the product of the ratios for successive pairs must coincide with the ratio for the endpoints. This is the chain consistency required of price indices. A usual supposition is that the index is determined by a formula involving

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price and quantity data for the two reference periods, always joined with the question of which one to choose, and the perplexity that chain consistency is not obtained with any. Hence finally they should all be abandoned. This situation reflects 'The Index Number Problem'. This book brings together a coherent discussion of fifty years of astonishingly creative work on this subject.

Publishes in-depth articles on labor subjects, current labor statistics, information about current labor contracts, and book reviews.

A guide for constructing and using composite indicators for policy makers, academics, the media and other interested parties. In particular, this handbook is concerned with indicators which compare and rank country performance.

There is no book currently available that gives a comprehensive treatment of the design, construction, and use of index numbers. However, there is a pressing need for one in view of the increasing and more sophisticated employment of index numbers in the whole range of applied economics and specifically in discussions of macroeconomic policy. In this book, R. G. D. Allen meets this need in simple and consistent terms and with comprehensive coverage. The text begins with an elementary survey of the index-number problem before turning to more detailed treatments of the theory and practice of index numbers. The binary case in which one time period is compared with another is first developed and illustrated with numerous examples. This is to prepare the ground for the central part of the text on runs of index numbers. Particular attention is paid both to fixed-weighted and to chain forms as used in a wide range of published index numbers taken mainly from British official sources. This work deals with some further problems in the construction of index numbers, problems which are both troublesome and largely unresolved. These include the use of sampling techniques in index-number design and the theoretical and practical treatment of quality changes. It is also devoted to a number of detailed and specific applications of index-number techniques to problems ranging from national-income accounting, through the measurement of inequality of incomes and international comparisons of real incomes, to the use of index numbers of stock-market prices. Aimed primarily at students of economics, whatever their age and range of interests, this work will also be of use to those who handle index numbers professionally.

Index numbers are used to aggregate detailed information on prices and quantities into scalar measures of price and quantity levels or their growth. The paper reviews four main approaches to bilateral index number theory where two price and quantity vectors are to be aggregated: fixed basket and average of fixed baskets, stochastic, test or axiomatic and economic approaches. The paper also considers multilateral index number theory where it is necessary to construct price and quantity aggregates for more than two value aggregates. A final section notes some of the recent literature on related aspects of index number theory the construction of indexes when there is seasonality in the underlying data, sources of bias in consumer price indexes, the use of index numbers in measuring productivity, the problem of quality change and index number theory that is based on taking differences rather than ratios.

This book provides an introduction to index numbers for statisticians, economists and numerate members of the public. It covers the essential basics, mixing theoretical aspects with practical techniques to give a balanced and accessible introduction to the subject. The concepts are illustrated by exploring the construction and use of the Consumer Prices Index which is arguably the most important of all official statistics in the UK. The book also considers current issues and developments in the field including the use of large-scale price transaction data. A Practical Introduction to Index

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Numbers will be the ideal accompaniment for students taking the index number components of the Royal Statistical Society Ordinary and Higher Certificate exams; it provides suggested routes through the book for students, and sets of exercises with solutions.

This book deals with many of the most relevant topics in price index numbers theory and practice. The problem of the harmonization of CPIs and the time-space integration of baskets is analyzed at the Eu-zone level, with methodological and actual proposals on how to proceed for an overall treatment of the matter. Likewise, the construction of sub-indexes for households economic and social groups is investigated, in order to obtain specific inflation measurement instruments. Evidence from most updated databases is given. The questions of the spatial comparisons of price levels through PPPs and th.

Index numbers of price and quantity play an important role in the index-linking of government loans. The object of this study is to ascertain what formulae should be used in the construction of new index numbers to replace those known to produce biased measures of price and volume change.

The book is written specifically for students or young researchers with no prior experience in the procedure of index construction. The book is designed as a self-teaching aid, thus some terms related to index are clarified, and some typologies of this kind of variable and the procedure of constructing index are presented. Using examples and datasets from social research, tables and SPSS screen captures, the readers are guided through this process. Some problems encountered in practice in this process of constructing an index are highlighted and some solutions are presented. This is a book on the theory behind the construction of production index numbers. Well-known examples of such indexes are the Gross Domestic Product, the Producer Price Index, and labor productivity. Fisher and Shell provide the analysis behind this class of index numbers. They treat separately the different production units and different forms of industrial organization. They show the direction of bias in traditionally calculated index numbers and how biases can affect fundamental conclusions about the growth or stagnation of the economy.

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The Preface Elucidates That The Text Is Designed For Degree Courses In India. However, I Imagine That It Could Play A

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Useful Role For Those In Britain. It Is Mainly Intended As An Introductory Text For Those Studying Social Sciences And Economics. Individuals From Other Disciplines Would, No Doubt, Still Find It Useful As A General Reference. The Chapters Are Well Written And Easy To Follow. An Appealing Feature Of The Book Is That Much Emphasis Is Placed On The Understanding And Application Of Statistical Methods. There Is Avoidance Of Excessive Presentation Of Formulae. For These Reasons Alone I Think That Students Will Find The Text Attractive. Each Chapter Finishes With A Series Of Well-Formulated Questions, Which Test The Readers' Understanding. The Two Chapters On Statistical Inference And Tests Of Significance Are Excellent. It Is A Comprehensive And Interesting Text, One That I Think Most Students Would Find Useful. Indeed, It Is An Useful Addition To My Library, Having Already Referred To It Often. *The Statistician*, London, Vol. 45, No. 3 (1996).

A theft amounting to £1 was a capital offence in 1260 and a judge in 1610 affirmed the law could not then be applied since £1 was no longer what it was. Such association of money with a date is well recognized for its importance in very many connections. Thus arises the need to know how to convert an amount at one date into the right amount at another date: in other words, a price index. The longstanding question concerning how such an index should be constructed is known as 'The Index Number Problem'. The ordinary consumer price index represents a practical response to this need. However the search for a true price index has given rise to extensive thought and theory to which an impressive number of economists have each contributed a word, or volume. However, there have been hold-ups at a basic level, which are addressed in this book. The approach brings the subject into involvement with utility construction on the basis of finite data, in a form referred to as 'Afriat's Theorem' but now with utility subject to constant (and also possibly approximate) returns.

'An authoritative survey with exciting new insights of special interest to economists and econometricians who analyse intertemporal and interspatial price relationships.' - Professor Angus Maddison, Groningen University This book presents a comprehensive review of recent developments in the theory and construction of index numbers using the stochastic approach, demonstrating the versatility of this approach in handling various index number problems within a single conceptual framework. It also contains a brief, but complete, review of the existing approaches to index numbers with illustrative numerical examples. The stochastic approach considers the index number problem as a signal extraction problem. The strength and reliability of the signal extracted from price and quantity changes for different commodities depends upon the messages received and the information content of the messages. The most important applications of the new approach are to be found in the context of measuring rate of inflation; fixed and chain base index numbers for temporal comparisons and for spatial intercountry comparisons; the latter generally require special index number formulae that result in transitive and base invariant comparisons.

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Utz-Peter Reich addresses economists interested in a sound empirical foundation for their theoretical concepts. He investigates economic value and determines how value is defined in theory, which is microeconomic, and how it is measured in practice in national accounts. He demonstrates that microeconomic theory is not made to guide or interpret national accounts figures and he offers an alternative theory.

This Handbook provides, for the first time, comprehensive guidelines for the compilation of Residential Property Price Indexes and explains in depth the methods and best practices used to calculate an RPPI.

You can use this book to design a house for yourself with your family; you can use it to work with your neighbors to improve your town and neighborhood; you can use it to design an office, or a workshop, or a public building. And you can use it to guide you in the actual process of construction. After a ten-year silence, Christopher Alexander and his colleagues at the Center for Environmental Structure are now publishing a major statement in the form of three books which will, in their words, "lay the basis for an entirely new approach to architecture, building and planning, which will we hope replace existing ideas and practices entirely." The three books are *The Timeless Way of Building*, *The Oregon Experiment*, and this book, *A Pattern Language*. At the core of these books is the idea that people should design for themselves their own houses, streets, and communities. This idea may be radical (it implies a radical transformation of the architectural profession) but it comes simply from the observation that most of the wonderful places of the world were not made by architects but by the people. At the core of the books, too, is the point that in designing their environments people always rely on certain "languages," which, like the languages we speak, allow them to articulate and communicate an infinite variety of designs within a forma system which gives them coherence. This book provides a language of this kind. It will enable a person to make a design for almost any kind of building, or any part of the built environment. "Patterns," the units of this language, are answers to design problems (How high should a window sill be? How many stories should a building have? How much space in a neighborhood should be devoted to grass and trees?). More than 250 of the patterns in this pattern language are given: each consists of a problem statement, a discussion of the problem with an illustration, and a solution. As the authors say in their introduction, many of the patterns are archetypal, so deeply rooted in the nature of things that it seems likely that they will be a part of human nature, and human action, as much in five hundred years as they are today.

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