Book Review

Wojciech W. Charemza and Derek F. Deadman. *New Directions in Econometric Practice, General to Specific Modelling, Cointegration and Vector Auto Regression.* Cheltenham, U.K.: Edward Elgar Publishing Limited. 1997. Pages 360. £28.00 (Paperback).

Highly acclaimed and endorsed by leading econometricians, the book "New Directions in Econometric Practice" is not new among the econometrics and statisticians. It is more of a textbook for students of econometrics and statistics at various levels. It impressively attempts to address the main objective of explaining 'how to practice econometrics'. It provides an accessible and user-friendly approach to a new approach and methodology presented by David Hendry in his book, 'Dynamic Econometrics'. The book under review provides a practical and hands-on illustration of Hendry's approach, enabling students to use it for themselves in real world time-series econometric problems. The second edition of the book attempts to address the shortfalls identified by some reviewers in the first edition. By providing practical guidelines in terms of empirical illustration of each technique, using DHSY's suggested aggregated time series consumption function on PC-Gives (8.1 Professional), it opens new trails of research. The book is primarily designed for providing an intuitive understanding of recent developments in econometrics to non-specialist econometricians and is widely adopted by teachers, students and practitioners alike.

The authors of the book articulate Hendry's framework, using unconventional treatments of econometrics in resolving the key problem of empirical econometrics, i.e. matching economic theory with observed data features and developing empirically relevant models. Scrutinising the properties of time series data, this book examines the procedures and tools of contemporaneous econometrics and investigates systematic application of econometric methods to economic data. The contents of the book include a review of traditional methodology, data mining, origins of modern methodology via DHSY consumption function, general to specific modelling, cointegration analysis, vector auto regression, exogeneity and non-nested models, encompassing, and model selection.

The first chapter gives introduction. The second chapter, which deals with the issue of data mining, discusses the experimenter's control over the tools of model selection criteria, namely t-ratios, R-squared, adjusted R-squared, and other goodness of fit criteria. The authors warn that the most commonly anticipated wish to use the fixed data sample in some sequential way may lead to abuse the methodological principles, especially if not applied carefully. The authors realise the fact that some data mining is inevitable, besides they identify the occurrence of Lovell Bias due to the difference between the true and the nominal significance level leading to exaggerated claims of significance.

Chapter 3 reconsiders the original DHSY analysis, with modified and simplified explanations in light of the theory of consumption modelling, aided with computer outputs. This is in recognition for the role this article has played in development of new econometric approach and ideas. The later chapters give a detailed and up-to-date account of these recent developments. In line with Davidson, *et al.* (1978) approach to empirical econometric modelling, Chapter 4 contains a detailed discussion of general-to-specific modelling. The chapter gives the mechanics of general-to-specific modeling by initialising general Autoregressive Distributed Lag Model and gradually reducing it by examining linear or nonlinear restrictions imposed on parameters. It also describes a number of tools for examining these restrictions, for example the Likelihood Ratio, Wald and Lagrange Multiplier tests.

It is noted that the general-to-specific modelling is a method of discovery rather than of confirmation. Although using this technique one may lead to multiple admissible models not nested in each other but the alternative, i.e. the 'bottom up' approach has a major setback in that extending the model may be based upon using erroneous statistical procedures, which may lead, on that one hand, to a plethora of models and excessive data mining, on the other.

The following chapters brilliantly present conceptually difficult but significant ideas from advance econometrics. These ideas and techniques are in focus of the recent advancements and development in the field. Chapter 5 contains detailed discussion on cointegration. The chapter starts with explaining the importance of distinguishing between stochastic trends, with and without drift, and also between deterministic and stochastic trends and seasonality, supplemented by simulation results. It then presents a comprehensive debate on unit root tests and determining the order of integration. Starting with the Dickey-Fuller test, this discussion covers the detailed working of Augmented Dickey Fuller and Integrated Durbin Watson tests. These are aided with recomputed simulations for the Dickey Fuller statistics for larger sample sizes and replications. Dickey Hasza Fuller, HEGY and Dickey Pantula test for seasonal unit root are explained with newly added tables. Special attention is given to Dickey Pantula approach and the Perron's (1989) suggested 'additive outlier' test, covering the treatment for unit root in the presence of structural breaks. Later part of Chapter 5 contains a comprehensive discussion on cointegration comprising of Engle-Granger type test, Cointegrated Durbin Watson (CIDW) and its rule of thumb suggested by Banerjee (1986). Later on, modelling of Cointegrated series through Error Correction Model is explained. Finally, this all is supported by the empirical example of DHSY model.

Chapter 6 studies the traditional and modern approaches for dealing with the relationships described by the system of more than one equation. Under modern approach Vector Autoregressive models (VAR) are presented. VARs are considered as forecasting device for studying causality and cointegration. Within the VAR framework, Johansen's approach and Granger's representation for cointegration are explained. It also contains the impulse response analysis of VARs models and its illustrations. Identifying the problems of VAR models in real world situation, especially when one wishes to handle more than four variables, Chapter 7 sheds light on exogeneity modelling. Concepts of weak exogeneity and strong exogeneity are thoroughly discussed, along with the mathematical descriptions. This chapter also investigates exogeneity properties and invariance properties for the variables in DHSY model.

Problems in choosing between models and the concept of encompassing are the focus of Chapter 8. Cases of nested and non-nested models are identified in relation to encompassing. 'Encompassing' holds when one econometric model can explain the behaviour of relevant characteristics of other models. However, the term 'relevant characteristics' in not possible to be identified in absolute terms, making encompassing a bit complicated and requiring model selection tests. $\bar{R}^2$, Akaike Information Criteria, Schwarz Bayesian Criteria and Final Prediction Error are discussed as model selection criteria. However, these criteria do not aid in deciding which model is better. In addition, J test is discussed for variance encompassing of non-nested models.

Along with worked examples the book contains a large number of working exercises, helping novices in aided learning. The clarity of presenting intuitive accounts of modern advances of econometrics has led this book to be widely adopted in courses of applied econometrics at various levels, which it rightly deserves.

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REFERENCES

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