

promised but never did. However, Ruskin and Veblen act as Roger Fry's only acknowledged guides in this excursion, though Keynes, as Goodwin tantalizingly indicates (pp. 12–13), may have been a further, and later, influence or may himself have been influenced by the older Fry (pp. 51–60).

The essays themselves are subdivided into three parts: theory, history and policy. In the theory part, art is linked to science, aesthetics, snobbism, psychoanalysis and morals as well as to commerce and economics. The historical part includes a splendid, short piece on the art of Florence, as well as a most perceptive introduction to Georgian art. The last ably links the blossoming of the arts in the Britain of the time to rising living standards, by means of the analytical apparatus of supply and demand with demand, in true Keynesian spirit, taking the lead. The joys of discovering the contents of these essays in detail can be left to the reader, the quoted paragraph on which I conclude this review is sufficient sample of the pleasures in store for those who acquire this finely produced and elegantly introduced volume.

Perhaps most important among the differences was in the value they placed on art. Morris offered the following simple utilitarian explanation of the value of the decorative arts: 'To give people pleasure in the things they must perforce use, that is one great office of decoration, to give people pleasure in the things they must perforce make, that is the other use of it' (1878, p. 5). By contrast, Fry, following Veblen, did not accept this simple picture of utility-satisfaction as an explanation for consumer or producer behaviour in the art world. Moreover, he saw the artistic experience as part of the emotional life of humans where the biological basis of pleasure as conventionally understood did not apply. For Fry art was its own justification—'Art for art's sake'—and needed no defense from a pleasure/pain calculus. The aesthetic enjoyment experienced by an artist in creating, and by a viewer in perceiving, a work of art was characteristic of civilized society, but it was not instrumental to anything else, whether this might be want satisfaction or the making of better citizens. Morris, in the same way as his mentor Ruskin, saw art almost as social therapy, as a way of moderating the effects of industrialization on its human participants. The dehumanizing effects of the machine process could be minimized by

reviving arts and crafts wherein workers could regain 'the opportunity of expressing their own thoughts to their fellows by means of their own labour' (Morris 1947, p. 97). Fry's own interest in crafts was when they put into effect the aesthetic vision of a genuine artist, as occurred in the Omega Workshops. The effects on the workmen of their craftsmanship were of little interest to Fry. Morris, like Ruskin and Carpenter, was optimistic about arousing artistic sensibilities in the working class. Fry was far more pessimistic. He believed that, by the time workers reached maturity, they were corrupted by society and largely lost to art; they had become the Philistines, the herd, and were one of the main obstacles in the path of the true artist (p. 47).

PETER GROENEWEGEN

University of Sydney

REFERENCES: Morris, William (1878), *The Decorative Arts: Their Relation to Modern Life and Process*, Ellis and White, London; —, (1947), *On Art and Socialism*, John Lehmann, London.

Unit Roots, Cointegration, and Structural Change, by G.S. Maddala and I.M. Kim (Cambridge University Press, 1998), pp. xviii + 505. (Paperback \$A44.95, hardback \$A115)

This book provides an overview of recent developments in the econometrics literature on non-stationary data. It is intended to be a resource for graduate students and empirical researchers who want to become familiar with modern time series before starting their own research, and it will serve this purpose well. The exposition is deliberately non-technical, so that readers who are unfamiliar with this field can become acquainted with the basic ideas without getting bogged down in detailed proofs. Further, although the selection of work that is covered by this review is very extensive, much of the book is in a summary format, so that details don't cloud the main issues. The book reads somewhat like an encyclopedia in places, but the many relevant references that are cited throughout ensure that the reader can pursue further details, should he/she require them.

The first two chapters set the stage for the remainder of the book. Here, the authors define basic time-series concepts, and then explain why econometricians have focused on the study of trends found in macroeconomic data. Two reasons are given. The first is that recent developments in relevant asymptotic theory have now made it possible to study trending data using formal statistical inference. The second reason is that many researchers now believe that the trends in macroeconomic data result from the presence of unit roots, and that such trends should be properly accounted for, rather than ignored or removed.

The authors survey and summarize the unit root literature in the next two chapters. After briefly discussing some relevant theory on Wiener processes and scaling factors for asymptotic distributions, they then provide a very extensive catalogue for procedures that are used to discriminate between trend-stationary and difference-stationary data. These include Dickey-Fuller tests, Phillips-Perron tests, Sargan-Bhargava tests, variance ratio tests, IV unit root tests, panel data unit root tests, several tests of the null hypothesis that a time series is stationary, and many other procedures that fall within the classical test paradigm. The size and power problems that can arise from the trend and error characteristics of the testing set-up are emphasized, and many (partial) solutions to these problems are discussed. Relevant Monte Carlo evidence is cited throughout. The authors make it clear that the unit root debate is not yet resolved, especially since the different tests applied to the Nelson-Plosser data set lead to different conclusions. They conclude that more classical tests are unlikely to contribute to this debate, and that the literature now needs to pay more attention to the uncertainty associated with possible unit roots.

Chapters 5, 6 and 7 discuss estimation and inference in possibly cointegrated systems. As in Chapters 3 and 4, many different procedures are outlined and the reader is warned about the many possible pitfalls. Relevant Monte Carlo evidence is cited to compare the different procedures, and bootstrapping procedures (discussed in Chapter 10) are later recommended as a way to improve small sample inference. The authors pay special attention to pre-testing issues, and how best to normalize and interpret cointegrating vectors. Issues associated with spurious relationships and unbalanced regression equations are also discussed. The uncertainty associated with any

analysis that involves possible unit roots and cointegration is re-emphasized, and Bayesian methods are suggested as a way to incorporate this uncertainty.

The next chapter discusses Bayesian analysis of stochastic trends. Here, after providing a brief introduction to Bayesian inference, the authors outline how studies based on the Bayesian paradigm have contributed to our knowledge on unit roots and cointegration. The debate about appropriate priors is discussed, as is the fact that different priors lead to different conclusions with respect to the Nelson-Plosser data set. The authors argue that the uncertainty about stochastic trends in models can be viewed as a model selection problem, and they compare a number of information criteria that might be used to choose an appropriate specification.

The second half of the book moves away from the well-known problem of discriminating between unit root processes with drift and linear time-trend processes, and looks at other types of time-dependent processes. Chapter 9 covers fractional processes and fractional cointegration, Chapter 11 covers $I(2)$ processes and cointegration between $I(2)$ processes, and Chapter 12 deals with seasonal unit roots and seasonal cointegration. In each case, the process is defined, and tests for it (together with relevant Monte Carlo evidence) are briefly discussed. Each chapter concludes with a section on empirical applications.

The final section of the book includes three chapters on structural change. Chapter 13 provides an overview of the structural change literature, and emphasizes recent work on unit root and cointegration tests under possible structural change. Chapter 14 discusses outliers, stressing the need to distinguish between outliers in levels and outliers in differences. This chapter also outlines various unit root and cointegration tests that are robust to outliers. Chapter 15 then provides a very brief discussion on state-space models and an extensive (but rather negative) review of Markov switching models.

The authors make their perspective on each of the above strands of research very clear. Throughout the text, they strongly denounce widely used procedures such as Dickey Fuller tests, and they advocate alternative computer intensive methods (that might not necessarily be used much in practice). A notable feature of the book is that it includes many detailed descriptions of Monte Carlo studies. Empirical applications are

brought in at appropriate points, but they are not emphasized. The final chapter in the book summarizes the authors' outlook on the unit root and cointegration literature by bemoaning 'unit root mania' (their phrase), and the accompanying interest in its asymptotic theory. The authors conclude by advocating more research in bootstrap methods and Bayesian analysis. They also urge researchers to reconsider the reasons for conducting unit root and cointegration tests, and to consider the adoption of structural time-series models as an alternative to stochastic trend models.

The book is not meant to be a text, and I would not use it as such. However, I would include it on my reading list for an advanced time-series course, because it provides an extensive literature review on many developing areas of time-series econometrics. It is likely to be a useful reference document for both students and empirical researchers. Some readers might not like the negative undertones that run throughout this survey, even if they agree with authors' criticisms of the literature. Perhaps one needs to recognize that criticism is often helpful, even if it is blunt.

While a literature review cannot possibly cover everything that has been written on a subject, there are some surprising omissions from this book. I found the lack of any reference to Hamilton's (1994) text inexcusable, given that this popular and accessible text provides many of the technical details that Maddala and Kim leave the reader to pursue. Hansen (1995) wrote, 'Someone wishing to learn the asymptotic theory for unit roots and cointegration would be well advised to start with Hamilton's Chapters 15–20', and I think that this advice is well worth repeating. Another notable omission is Tong's (1990) book on nonlinear dynamics, which provides a well-recognized treatise on regime-switching models. Finally, since the authors emphasize the dangers associated with inappropriate detrending, and they

aim to provide empirical researchers with guidelines, it is odd that they make no mention of the Hodrick-Prescott filter. Given that this filter is so popular in the applied macroeconomic literature, some discussion on its implications might have provided a useful addition to the book.

HEATHER ANDERSON

Monash University

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Erratum

The book review of *Longrun Dynamics: A General Economic and Political Theory*, by Graeme Snooks, published in June 1999 issue of the *Economic Record*, was incorrectly attributed to George Messiris. The author of the review was George Messinis.