Reviews

Causality in Macroeconomics, by K. Hoover (Cambridge University Press, Cambridge, 2001), pp. xiii + 311.

Causality is a very old issue, which has interested philosophers since ancient Athens and although it is considered to be an essential part of scientific reasoning, one can argue that there is no universal agreement concerning its precise meaning. This picture holds for economics, where the relevant discussion is not as extensive as one would expect given the importance of causality for the understanding, prediction and control of economic phenomena. Kevin Hoover's book attempts to fill this gap, especially with reference to macroeconomic phenomena.

Although the title of the book indicates its focus on macroeconomic issues, Hoover provides an extensive account of many important aspects of the notion of causality. More specifically, the author devotes the first four chapters to presenting and analysing the basic dimensions of the issue. The first chapter presents the constant conjunction model of causality in the intellectual tradition of David Hume and also outlines the first important criticisms of this tradition. The following three chapters develop the causal structure approach to causality, which Hoover thinks as much more appropriate. In particular, the author discusses Mackie's conditional account of causality as an 'Insufficient but Necessary element of a Unnecessary but sufficient condition' and Simon's account of causal direction (Chapter 2).

Chapter 3 shows that Simon's approach can be applied to macroeconomics and especially to nonlinear cases (e.g. the rational expectations hypothesis). The next chapter attempts to establish the theoretical basis for the structural account of causality, and to provide support for its appropriateness as a general approach to causality. An additional benefit of this long chapter is that it provides a competent review of important philosophical approaches to causality such as those of N. Cartwright and D. Hausman.

After the general discussion of the first four chapters, Hoover proceeds to concentrate on macroeconomic causality. His basic aim is to establish a connection between the general causal analysis developed for other problems, and the practical causal reasoning of macroeconomics. Hoover begins in Chapter 5, by examining the suitability of macroeconomics as a subject for a structural causal account. After discussing issues such as the program of microfoundations and the ontology of macroeconomic entities, the author argues that the structural account can be applied to macroeconomics as it deals with real entities. In the next chapter, the author provides further evidence of the idea that macroeconomic structures are analogous to physical structures and therefore in this sense, it is an extension of the previous argument.

Chapter 7 concentrates on the specific issue of macroeconometric causality. After outlining the history of causality in econometrics, Hoover supplies a very thorough review of current econometric approaches to causality: Granger, Glymour *et al.* and LeRoy. The author also argues that these approaches can act as supplements to the structural approach. Furthermore, they can be used in conjunction with the structural account to assist resolving the problem of causal direction, and this is the topic of Chapter 8. The suggested methodological scheme is then applied to two case studies. More specifically, Chapter 9 examines the causal direction between taxes and government spending in the postwar period. The empirical results suggest that in the case of USA government spending is endogenous. The next case study deals with the well-known issue of the causal direction between money and prices. The use of the structural approach to USA data suggests that currency does not cause prices. Finally, the last chapter recapitulates the important points of the book.

There are two basic ideas in this work: first, a rejection of the reductionist approach which underlines much of the Humean tradition to causality. Second, a case for an antireductionist approach which accepts the idea of structure to be the fundamental notion of causality. As Hoover states 'The causal relations are … not constant conjunction, not probabilities, not time order, not incremental predictability, not non-invertible functional relations … [t]hey are … necessary conditions between things' (p. 284).

Some of the ideas presented in this book have been previously published in academic journals by the author. However, the flow of the argument is extremely good and Hoover's application of the structural account to causality

 ISSN 0013–0249.

to macroeconomics is generally interesting and refreshing.

Another important merit of the book is the excellent survey and discussion of the most important philosophical, economic and econometric approaches to causality. Hoover takes the issue of causality seriously and he is absolutely right to do so. As he says in the first chapter, many philosophical discussions of causality regard the adequacy of the analysis to quantum physics as the touchstone of its success; and he is planning to do the same in regard to macroeconomics (p. 27). (He mentions again the connection between quantum physics and causality (p. 101), and at several places he appeals to examples from physics). Given this motivation, one would expect a more detailed discussion of the conception of causality in quantum physics. However, I am not sure that the author's preoccupation with the physics analogy is very helpful, given that it has been severely criticized by many methodologists.

I think that another (albeit indirect) benefit for the reader of this book is the emergence of the importance of economic methodology. This might come as a surprise to economists who are doubtful of the value of economic methodology especially in more hard core disciplines such as econometrics. For instance, in his discussion of the reality of macroeconomic structures, Hoover provides an examination of methodological concepts such as those of methodological and ontological individ-ualism citing works by Blaug, Hayek and Maki among others. Hoover attempts to provide methodological justification to the idea that macroeconomic aggregates are analogous to physical structures (e.g. billiard balls), but I have to say that I am not entirely convinced by his argument.

In general, this is a very stimulating and valuable book that will appeal to economists, econometricians and economic methodologists. Its importance for the profession is even stronger as it deals with an issue that many economists and econometricians mistakenly take as given, and do not bother thinking much about. I believe that it provides an important contribution to the discussion of causality and hopefully it will assist in crucial economic policy matters.

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The New Evolutionary Microeconomics: Complexity, Competence and Adaptive Behaviour, by Jason Potts, (Edward Elgar, Cheltenham, UK), pp. xii + 239.

The various branches of heterodox economics have lacked a unifying theme. Jason Potts argues that each branch has attacked the orthodox neoWalrasian model from a different perspective. Schumpeterians say it lacks imagination, Post-Keynesians say it lacks emotion, Institutionalists say it lacks structure (i.e. attention to habits and routines), and the behaviouralists say it lacks an accurate picture of the brain. Heterodox schools have attacked the axioms of continuity, completeness, transitivity, reflexivity, montonicity, regularity, and convexity. In their place they have stressed uncertainty, bounded rationality, disequilibrium, increasing returns, and hysteresis. But Potts believes that all have missed the unifying point, namely the geometry of economic space, which he observes is not that of a 'integral field',[1] but one of complex systems. And, the understanding of complex systems requires nothing less than a revolution in ontology and methodology.

Potts argues that the following characteristics of economic systems destroy the assumption of integral space. All elements (such as products, consumers, firms) can not be connected because of uncertainty and bounded rationality and cognitive, heuristic, organisational, spatial, temporal, market, and social structures. At the level of the human brain, it is composed of modules with varying degree of connections. At the level of the supermarket, the consumer can not have a prior preference map of its many products. Out of the few products, organisational forms, and institutions that the brain can account for, the selection process can not be regarded as optimal because fitness is local and time dependent. All elements are not and cannot be connected. Uncertainty cannot be brushed aside by assuming a complete set of forward contingent markets; rather cogni-

[1] 'A single (mathematical) operation links any point in economic space with any other point (p. 17)'. If economic space 'is non-intergral, in the sense that the set of interactions cannot be collapsed to a field of actions, then the geometry of economic space must be mapped by a set of specific connections (on a lattice)' (p. 19).

tive imagination matters. Increasing returns and path dependency destroy general equilibrium possibilities. Open systems destroy positivistic and deductive methodology. Economic systems have multiple agents with different mental maps of the world. This lack of homogeneity in cognition (necessarily selective perception) means that connections of elements will be differently made by different people.

'Heterodox economics comes together about a single point, that systems exist and that the crucial fact of their existence is structural incompleteness: that not every element is connected to every other', says Potts (p. 182). What is the essence of a systems approach? A system is made up of elements and connections chosen by the observer to suit a purpose. Any system can be further disaggregated into subsystems and in turn is a part of a higher order system. The connections within a particular system and between it and other systems are not given, but generated endogenously. 'These dimensions do not exist *a priori*, but are created in the process of economic coordination' (p. 79). The whole can be greater (or less) than the sum of its parts.[1] This is the property of emergence. The formation of new connections and switching from one regime to another is typical of complex systems, not an aberration. A system evolves by changing connections. Learning and knowledge are at the heart of emergence and the formation of new connections. This conception unites technology, institutions, organisations, and cognitive processes. New technology makes new connections among materials. New institutions and organisations make new connections among people and between people and materials. Thus Potts brings together such otherwise disparate topics as strategic planning and other entrepreneurial processes, imagination, and creativity, in the face of uncertainty. All are evolving, emerging connections. 'Change and existence are the same thing' (p. 39). While Potts argues for an evolutionary perspective, he warns against a narrow Darwinism. We must be careful of attributing any special standing to existing connections. Fitness and optimality have questionable meaning when the connection and the environment are both changing. Conception of both fitness and the environment are both cognitive acts, not simply givens. Prior preferences influence choices, but preferences are worked out in the act of choice. Institutions affect individuals and individuals affect institutions.

Systems thinking with real-time leads to a different conception of efficiency. One system could make an efficient combination of resources at each point in time, but be inferior to another system over time. The latter could be more flexible in adapting to unpredictable events. There is a continual tension between order and change. Stable systems are more predictable and perhaps less stressful. But, Potts suggests that systems can be so stable and appropriate to a given environment that they are destroyed by small changes from outside. However, they can be so interconnected that small changes are so magnified that chaos ensues.

Potts suggests that graph theory is appropriate to model the connections of complex systems. The density of connections can thus be seen and related to evolutionary paths. He goes so far as to say, 'Systems are characterised by their diversity not so much by what they are made of but by how they are connected together' (p. 198). Potts leaves the reader thinking that the only thing that matters is what is connected to what (on or off) and not the character of the connection. But surely in the human brain, some people have connections across the synapses that are so strong that it leads to addiction while it does not in others. The parties exchanging goods behave differently when they have affinity or malevolence toward each other. Any buyer or seller is connected, but it makes a difference who is the owner of a particular opportunity.

Applications are brief in this theoretical work, but the transaction cost minimisation (economising) explanation of the firm is criticized by Potts using his emergent systems perspective (p. 98). If the firm already knew how to maximise profits, then it could design incentive structures to achieve it and prevent costly opportunistic behaviour by its contractees made possible by unforeseen events. But, if the organisational structure also produces benefits in the form of knowledge about how to achieve profits, then the means and ends are both products of organisation. The problem is not merely to prevent shirking and opportunism, but to create a competent organisation that can learn and evolve. Different organisational forms with different transaction costs create different competencies and ideas on future products and technologies. One does not just design institutions (connections) to implement a previously known smooth running machine, but rather to build (create) competence. This story does not formalise and graph easily, and Potts does not try.

Institutions are clearly connections in Pott's view. Still, they are described at a very abstract level. The reader is left to think about what kind of connections in what context are important to evolution and performance (who gets what). There is no typology of useful categories for particular systems within systems. As noted above, there is some attention given to an environment marked by uncertainty. Increasing returns is also mentioned. But, there are other situations creating human interdependencies where the connecting structure produces different performance outcomes. There is little blood in Pott – no sense of how past systems created winners and losers or how these might be changed in the future. Different interests struggle to make their preferred connections count. Property rights are mentioned, but no taxonomy of alternative structures is offered that are relevant to each source of interdependence.

This is a deep and profound book that deserves a deep reading. I have added it to the reading list for my graduate seminar in institutional and behavioural economics.

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The Economics of Football, by Stephen Dobson and John Goddard, (Cambridge University Press, Cambridge, 2001), 458pp.[1]

The field of sports economics is largely an American invention. In the USA, of course, 'football' (by which I mean soccer) is about as popular as ice hockey in Australia. So it is not surprising that it has taken until now for a book on the economics of football to appear. To economists that count themselves as fans of English football, this thorough and informative book by Stephen Dobson and John Goddard is worth the wait.

The book kicks of with a detailed analysis of development of English football. Analysis of final league position since the 1920s shows clearly the inexorable rise of competitive inequality between clubs. What is particularly illuminating is not so much that football's honours have increasingly become concentrated within fewer clubs, but how the concentration is intrinsically linked to changes in the commercial structure of football. Two watersheds are influential: the abolition of the maximum wage and reform of the player transfer system in the early 1960s, and the rebirth of football in the early 1990s brought about largely by television revenue. Both instances increased the importance of financial clout to success on the field. Given that Manchester United have won seven of the 10 last league championships, rising financial and competitive inequality shows no signs of abating.

Having identified the issue of rising competitive imbalance, the question is whether anything can be done about it. Various schemes purporting to enhance competitive balance are evident in North American professional sport, such as the college draft (National Football League (NFL) and National Hockey League), salary caps (National Basketball League), restrictions on free agency (all major league sports), and revenue sharing (NFL again). Can these schemes be expected to work for English football?

The theoretical model of a football league in Chapter 3 suggests not. The result is basically an application of the Coase Theorem, which states that the efficient distribution of a resource (in this case, talent) is independent of the property right to that resource. This invariance result implies that competitive balance will be maintained in the long run. So, to all you Manchester United-haters out there: sit tight and let the market do its work.

This is not a book devoted to theory, however. The book's strength is its range of econometric applications and the variation in estimation techniques employed. There are appearances of the ordered probit model (match forecasting), hazard function estimation (manager tenure), the probit model (manager departure) as well as numerous appearances of the linear regression model. There are also nicely developed applications of event study analysis (share prices of clubs) and stochastic frontier analysis (managerial efficiency).

Some of the book's empirical analysis is less than inspiring. An event study analysis reveals clearly that the unanticipated component of

[1] A sample chapter available online at http://assets.Cambridge.org/0521661587/sample/0521661587WS.PDF.

match results, rather than the result per se, influence share prices, consistent with the efficient markets hypothesis. Thus there is no way to beat the bookies or stock markets. Not terribly surprising, although much effort goes into establishing the results. Equally unsurprising is the conclusion that managers are more likely to be fired if they are inefficient (measured by efficiency scores), or following a string of poor results, and less likely to be fired if the team is doing well.

But good econometrics can debunk widely held myths, and there are plenty of myths in football, and, happily, lots of good econometrics in this book. Take, for example, the widely held opinion that teams replacing managers in mid-season immediately go on a run of good results. This, it turns out, is completely false. In fact, immediately after managers are replaced, results deteriorate, even accounting for the fact that the previous manager was probably fired because results were poor. Results for teams with new managers do improve eventually, but not until the following season. And does a recent run of good results create confidence, raising the probability of another good result? The answer is no: the analysis of match results over the last 30 years shows that complacency sets in, reversing good spells sooner than would otherwise be expected.

A particularly fine example of good econometrics is provided by the analysis of the productivity of managers. The key here is controlling for team quality, which is problematic given the difficulty of measuring individual player performance in football. A novel way around the problem is to use a player transfer regression model to derive a team's estimated monetary value, which is used as a proxy for team quality. The resulting efficiency scores estimated from a stochastic production frontier model show that Sir Alex Ferguson does not rank in the top 25 managers over 1992–1998, despite the fact that Manchester United won four of the six Premier League titles over the period. Apparently, with the resources available to Ferguson, United should have won the league even more often.

Perhaps the most striking result of all comes from the model of match-day attendance estimated in Chapter 7. Here we find that duration of membership in the English league is a significant determinant of current attendance levels. In other words, first-mover advantage still shows up in the data almost a century later. Nevertheless, given the ongoing experiments with pay-per-view football on television and the internet, it is a little disappointing that the analysis of demand is confined to match-day attendance. One can not help but think that stadium crowd size is increasingly irrelevant to elite football teams; what really matters is television and, in the near future, online ratings. Most Italian Series A matches are played in half-empty stadiums, but at the same time the football has global television coverage and Italian teams pay some of the highest wages in football.[2]

The final chapter considers the future of English football. Like many others, the authors point to the increasing role of television and the rising salaries of star players as the major forces that will affect the future of the game. The forces will likely bring about a further rise in inequality, both financially and on the pitch, in English club football.

It would seem to the reviewer, however, that there are other (less obvious) causes for concern. On the eve of the 2002–2003 season, there are ominous signs that English football's bubble may have burst. Player transfer activity has declined dramatically, a television company has gone bankrupt because it overpaid for rights to broadcast pay-per-view matches, possibly dragging some teams down with it, and Bradford City – a Premier League club until 2001 – are on the verge of ceasing to exist. Potentially the most troubling recent development is the increasing power being exercised over club management by shareholders. The sale of Rio Ferdinand in July 2002 by Leeds United (to Manchester United, of course) being a case in point.

At several points in the book, the authors are at pains to point out that English football is different from other, especially American, professional sports in that clubs are run with the objective of maximising utility rather than profit. Yet it would seem that, while this may have been true in the past, profit maximisation is the way of the future. The implications of the change in objective function for football clubs and especially their supporters will be profound, yet the issue is untouched.

All the econometrics obviously limits the potential audience of the book – they will not be

[2] Given the ready availability of television program ratings, it would have been nice to see at least a preliminary analysis of the determinants of remote audiences for football matches.

talking about this one on the terraces. It does, however, raise the possibility that the book, or at least parts of the book, could be used as the text book for a course on the economics of (professional) sport or, at a pinch, as supplementary reading for an applied econometrics course. Each chapter begins by posing a couple of questions relevant to football, discusses the relevant economic theory behind the issues, and proceeds to an empirical analysis of the matter at hand. The relevant literature is reviewed extensively in each chapter and the references are universal. As each chapter stands largely on its own, the book is well suited to those who want to pick and choose their topics.

If you are an economist and a fan of English football, you will marvel at the thoroughness of this book and its dedication to matching the right econometric technique to the empirical task at hand. You will also occasionally be enlightened at the insight into the game that the careful analysis brings. Whether the book will become a major work for the sports economics field as a whole is more doubtful. While its true that the book fills a gap in the body of knowledge on professional sport, there is little that is actually new to the area. There are few, if any, new theoretical results. Most of the empirical work has been done before using data from other sports. But a good economics book should not be judged just by the newness of its results. By painstakingly reviewing the sports economics literature in the context of professional football, by clearly laying out many of the key issues facing the sport, and by its wealth of estimation results, this book should prove to be a catalyst for research for years to come.

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Forced Saving: Mandating Private Retirement Incomes, by Hazel Bateman, Geoffrey Kingston and John Piggott (Cambridge University Press, Cambridge, 2001), pp. 267.

Several high profile superannuation fund failures during recent years sparked a crisis of public confidence in the Australian superannuation system, providing an impetus for several investigations into the system during 2001. A review of the superannuation legislation by the Productivity Commission identified areas of regulatory weakness.[1] The Senate Select Committee on Superannuation and Financial Services (SSCSFS) published three reports during 2001 on their investigations into, inter alia, prudential supervision and consumer protection for superannuation.[2] The SSCSFS identified a number of areas where both regulation needs to be strengthened and performance of the regulators needs improvement. Further scrutiny of the system came through publication by the (then) Minister for Financial Services and Regulation of an issues paper on the safety of superannuation[3] and establishment of a Superannuation Working Group, which published recommendations on proposed legislative changes.[4]

With the Australian superannuation system under such intense scrutiny, *Forced Saving: Mandating Private Retirement Incomes* by Bateman, Kingston and Piggott (BKP) is a timely analysis of retirement income policies which have elements of compulsion and private sector management of retirement savings. The commonly referred-to ‘three pillars’ of retirement income systems generally comprise a government-provided age pension as the first pillar, mandatory private retirement savings as the second pillar and voluntary retirements savings as the third pillar. Although BKP’s book is principally aimed at addressing issues associated with the second pillar – mandated private retirement savings policy – much of their analysis extends to generic retirement income

[1]Productivity Commission 2001, Review of the Superannuation Industry (Supervision) Act 1993 and Certain Other Superannuation Legislation, Report no. 18, AusInfo, Canberra.

[2]Senate Select Committee on Superannuation and Financial Services, Prudential Supervision and Consumer Protection for Superannuation, Banking and Financial Services: First Report, August 2001; Second Report – Some Case Studies, August 2001; Third Report – Auditing of Superannuation Funds, September 2001.

[3]Hockey, J, ‘Options for Improving the Safety of Superannuation – Issues Paper’, Canberra, 2 October 2001.

[4]Superannuation Working Group, ‘Options for Improving the Safety of Superannuation – Draft Recommendations’, Canberra, 4 March 2002.

policy issues. Although the breadth of coverage, in terms of both the range of issues addressed and the international perspective, ensures comprehensive treatment of the topic, it constrains the depth of analysis of issues relevant to their central theme: mandatory private retirement savings. For example, the 'financial risks over the life cycle' chapter provides a comprehensive overview of different types of risks associated with different types of investments and pension schemes, but does not specifically address how these impact on privately managed mandatory retirement savings as distinct from voluntary arrangements.

The authors state that writing this book was motivated by their observation that 'the Australian superannuation guarantee was an example of a distinct policy paradigm that was becoming increasingly prominent in the international policy debate' (p. viii). The Australian superannuation system is a model to which many overseas countries are now looking as a working example of public policy which mandates saving for retirement income while leaving the management of those savings to the private sector. Given that BKP state that 'the essential focus' of their book is on such policies (p. 13), it is disappointing that they have not integrated the Australian 'case study' into their analysis to a greater extent, rather than relegating an overview of the system to an appendix. Notwithstanding this minor criticism, Appendix 1 provides an excellent summary of the development and status quo of the Australian superannuation system and identifies key problem areas that remain to be addressed. This appendix should prove to be a useful reference source for anyone wanting to quickly gain an overview and basic understanding of the Australian superannuation system.

Major strengths of this book are its readability and comprehensive coverage of issues surrounding retirement savings policy formulation and implementation. In the introductory chapter, BKP evaluate the pros and cons of mandatory private retirement income provision, identify the specific challenges in designing second pillar retirement income policy (as distinct from generic retirement policy formulation) and establish the structure for the issues addressed in ensuing chapters. The discourse progresses from general discussion about work, saving and retirement over an individual's life cycle to the accumulation phase, in which the effects of governance, contributions, investment returns, taxation and administration costs on retirement savings and financial risks associated with asset allocation and investment strategies are considered. The payout phase is then explored with discussion of the rationale for mandatory retirement income streams, annuity markets and associated adverse selection problems. The final two chapters deal with two of the most controversial issues in retirement income policy debate: taxation and administrative costs and charges. The authors effectively draw together a broad range of complex issues that impact pension policy and present their analyses in a manner that is relatively easy to understand. Much of the material is also presented from an international perspective, with useful cross-country comparisons highlighting differences among various countries in their policy approaches.

The analysis draws on literature in the fields of public finance, labour economics, economics of finance and actuarial science. While they provide some general theoretical explanations for their conclusions and policy recommendations, they generally stop short of delving deeper to explore policy solutions in more detail. For example, in relation to the accumulation phase, BKP address the fundamental issues of what constitutes the appropriate institutional framework for contributions, identifying the extent of intermediation between the contributor and the assets as a critical question. Intermediaries such as pension fund governing boards, administrators, investment managers and governments all impact, to varying degrees, on the ultimate benefit derived by the individual because they affect the investment returns earned on assets, fees and charges incurred and tax imposts. While BKP allude to agent-principal issues arising out of these effects on benefits, in many respects they leave unanswered how the various institutional arrangements across different countries might exacerbate or mitigate such agency problems. For example, why do some countries regulate administrative charges (e.g. Sweden, Chile) whereas others do not (e.g. Australia, Hong Kong)? Where regulation exists, how effective is it in resolving agency (moral hazard) problems arising from the market failures inherent in a privately managed compulsory savings environment?

The Australian system, along with many other countries, is rapidly moving towards offering superannuation fund members greater choice in relation to both the funds they join and investment options within funds. The authors clearly come down on the side of investment choice, seeing this as an opportunity for individuals to diversify their investment portfolio and accordingly choose the extent of exposure to investment risk. However, they only briefly address some of the major issues associated with individuals being forced to make investment decisions, including short-termism, conservatism, complacency and financial illiteracy. Is it feasible for every superannuation fund member to become an informed investor?

The authors highlight the difficulties in determining how the payout phase should be structured. They observe that voluntary annuity markets are thin, even in countries with a long history of annuity purchase, such as the UK, and attribute this to the costs of such products, uncertainty of longevity, a desire to control the capital, and bequest motives. They suggest that 'some form of mandatory purchase of a retirement income product will be required, if this form of retirement provision is to deliver financial security in later life … [but] conclude that there is no one preferred mandatory annuity design' (p. 185). Clearly, designing a system which ultimately delivers the benefits that a mandatory retirement savings system was established to achieve is a major policy challenge.

In a system where individuals are forced to provide for their own retirement and those savings are management by the private sector, there is a fine balance between free market mechanisms and regulatory intervention to ensure the system is secure, efficient and equitable. It is not yet evident whether the benefits of this second pillar of the retirement income system outweigh the costs.

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The Econometrics of Corporate Governance Studies, by Sanjai Bhagat and Richard H. Jeffries, Jr. (MIT Press, Cambridge MA, 2002), pp. xi + 115.

At first inspection the title of *The Econometrics of Corporate Governance Studies* suggests a lengthy volume reviewing a swathe of techniques used in empirical work on corporate governance. This is far from the case. *The Econometrics of Corporate Governance Studies* is a small, tightly written monograph containing basically one argument pertaining to the estimation of empirical corporate finance models.

The authors argue that existing empirical work in this area is fundamentally flawed essentially because it treats certain variables as exogenous when they are endogenous. The criticism of the existing literature is well founded and raises non-trivial issues of econometric methods. Indeed, properly specified, these models may not be identifiable. The authors illustrate potential ways to identify such models by considering exclusion restrictions in a specific example which overturns the existing empirical findings on that issue. Although their critique is far more compelling than their proposed solutions, *The Econometrics of Corporate Governance Studies* should be compulsory reading for researches in empirical corporate finance and in graduate or advanced undergraduate courses in econometric methods of corporate finance.

The empirical corporate finance literature is a large and rapidly growing one. The increased availability of data in this area and the expansion of economic groups in many business schools may well lead to continued growth. The literature is basically concerned with interrelationships between six variables: corporate performance, capital structure, ownership structure, corporate governance, management turnover and takeovers. The vast bulk of the existing literature considers two of these variables at a time. A subset of the perhaps better known examples of this literature which the authors list is: Comment and Schwert (1995) who consider the effect of takeover defences on takeovers, Denis and Serano (1996) who look at the effect of firm performance on management turnover, Garvey and Hanka (1999) who examine the impact of corporate governance on capital structure and Hermalin and Weisbach (1991) who investigate the relationship between ownership structure and corporate performance.

The authors argue that, in fact, all of the six variables are interrelated and hence looking at any two in isolation is potentially misleading. The appropriate econometric technique in considering the relationship between any two of the variables therefore is to estimate a system of simultaneous equations which specifies relationships between all six of the variables. Significant space is devoted to a thorough review of the theoretical and empirical literature which supports this claim.

The problem with the estimation of such a system of equations is that its identification (in the sense of yielding consistent parameter estimates) requires a combination of: exclusion restrictions, assumptions on the joint distribution of the error term and restrictions of the functional form of the structural equations. The theoretical corporate finance literature, to date, does not imply a specific functional form and hence this would appear to be an arbitrary econometric assumption to make. The possibility of identification through assumptions about the joint distribution of the error terms which can identify such models are not applicable in this instance because of the implications of the contract theory literature. That is, that unobservable characteristics of the manager would end up in all of the error terms when estimated.

The authors conclude that exclusion restrictions, by a process of elimination, are the most likely candidate to allow consistent estimation. This path is, itself, is not without complications. Simply because the other two options are problematic does not mean that exclusion restrictions are suddenly plausible. In the context of the example which the authors consider it is problematic because the variables which affect the probability of a takeover might well be correlated with the nature of the takeover defences themselves. As the authors themselves note 'in this context exclusions restrictions are difficult to justify'. They go on to say 'we… have a concern about the identification of such probit models'. In fact their own specification tests indicate that they 'ask too much of the data'. These problems highlight the difficulties in pursuing the, nonetheless well founded, approach of the authors.

The 'example' of the technique which the authors use does, itself, address an important question as well as serving as an exposition of their key argument. Basically they consider the efficacy of corporate takeover defences in: (i) preventing takeovers; and (ii) enhancing managerial tenure. The prevailing wisdom on these issues is as follows: defence measures generally have some efficacy in preventing takeovers (i.e. they have a negative impact on the probability of takeovers) and they extend job tenure for managers (see for instance Pound 1987). In applying their technique the authors find that in fact defence measures have a small (statistically significant) *positive* impact on takeovers and do not have an effect on managerial tenure (except in the case of 'poison pill' defences). These results are clearly due to their consideration of the other variables previously mentioned. For instance the result that takeover defences have no negative impact occurs only when performance is introduced into the model. This neatly illustrates the authors main point. Although the force of the actual conclusions depends on the validity of the econometric technique.

Bhagat and Jeffries work raises a fundamental issue regarding the estimation of empirical corporate finance models. Their argument that one cannot look at only bi-variate relationships in an inherently multivariate setting is both simple and compelling. The solution which they provide to identify the more complicated system of simultaneous equations which such models require, reliance on exclusion restrictions, is less compelling than their critique. Nonetheless, it is appropriately conscious of itself. It usefully highlights areas for research in econometric methods and contract theory which are needed in order to develop models that provide more guidance as to functional form. Finally, it identifies an important path for empirical corporate finance models to follow.

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Foundations of Mathematical Economics, by Michael Carter (The MIT Press, Cambridge, MA and London, 2001), pp. xviii + 649.

This is a remarkable book. Imagine if you will, being taken on an exhaustive tour of some magnificent gardens by a consummate gardener who is perfectly acquainted with the grounds, but is also an experienced botanist. The structure of the tour is governed by the layout of the gardens – which are beautiful in their own right – but along the way you are made aware of a large number of plant families and individual species, their characteristics, their relationships with one another, and the reason why individual plants have been placed where they are in the gardens. At the end of the tour you have gained a good knowledge of the topography of these gardens, an extensive botanical culture and some appreciation of how botany and landscape gardening interact. The tour is long, it is hard work, but it is very rewarding. You have put yourself almost entirely in the hands of the gardener. If you like to pick and choose, or set your own pace using guidebooks and references, this tour is not for you.

Back from this horticultural parable, what is the book about? As alluded earlier, fundamental mathematical topics (half a dozen only) are the organisational backbone of this treatise. The economic concepts, models, propositions … are gleaned along the way. Make no mistake! As a whole they constitute a body of knowledge which approaches the contents of a modern graduate textbook in microeconomic theory (not a perfect match). They are introduced skilfully, reflecting the author's thorough knowledge of these topics.

The book contains six chapters: 1. Set and Spaces, 2. Functions, 3. Linear Functions, 4. Smooth Functions, 5. Optimisation, and 6. Comparative Statics. There is a list of references, an index of symbols (useful) and a general index of some 700 entries. At the end of each chapter there are some bibliographical notes. The first three chapters constitute two-thirds of the book.

The chapter headings could be misunderstood; the contents of most chapters are much richer. For instance Chapter 2 (Functions) also covers the maximum theorem and several fixed point theorems. Chapter 3, entitled Linear Functions, includes convex, quasiconcave and homogeneous functions.

A feature of the book is the abundance of what the author calls 'Examples', drawn from economics – mainly microeconomics – and applied game theory. They are peppered throughout the text. Some straight mathematical examples are also found. There are many exercises which serve a double function: make the reader use a concept just introduced (exercises, like examples, are not grouped at the end of sections, but interspersed in the formal presentation), and establish some minor results or propositions. The potential difficulty with the latter function is elegantly solved by providing a Website which has very complete solutions to all exercises. In the remainder of this review I will concentrate on the nature of the examples because I believe it is rather unique and offers both advantages and disadvantages. On a minor note of criticism, I do not like the layout with regard to examples. (This is probably not the author's doing.). The place where the example ends and the general exposition begins again is not marked by any typographical sign or change of font. It makes it awkward to skip examples if one wishes. Finally although theorems, propositions and examples are always clearly labelled, the same is not true of definitions, which are often buried in the text in mere italics.

Chapter 1, formally about sets and spaces, also manages to introduce a wealth of concepts from the culture of applied game theory. This is done through the examples. Here is the list: coalitions, action pace, game tree, core, coalition game with transferable payoffs, simple games, unanimity games, nucleolus, strictly competitive games, Nash equilibrium, prisoner's dilemma, dominance, repeated games and market games. Most examples are only a paragraph long; few exceed one page.

This introduction is very sophisticated. Each time a new mathematical concept has been introduced it is illustrated. This is great and departs from the more pedestrian presentation of many textbooks, because it purposely opens the gates to many interesting fields to the reader. My reservation is that the reader may not realise this. For instance the Core example takes six lines. Coalitions have been defined in a previous example and the definition of the core is clearly and accurately written; but what reader who does not already know it will realise the import of this concept without discussion!

Chapter 2 is about functions but it does a formal thorough job of presenting the structure and results of Dynamic Programming, once again through examples: dynamics, optimal economic growth and dynamic programming. Some of these examples are substantial and run to a couple of pages, providing a good grasp of the structure of the model; however, there are no numerical examples and none of the exercises attempts to solve a problem. The objects are displayed but not used. What are used are the mathematical concepts.

As an application of Brouwer's fixed point theorem the existence of a competitive equilibrium is established. The sampling of game theory continues: payoff function, cournot oligopoly, characteristic function, value of a game, coalition game, Nash equilibrium as a fixed point, payoff function, zero-sum game, supermodular game, convex game, nucleolus, matching pennies, existence of a Nash equilibrium. There are many other examples drawn from economics.

It is clear from the above list that although the amount of material on applied game theory is substantial, it is not presented in a comprehensive manner. Its purpose is to illustrate the mathematical concepts. Another thing is clear: it would be unadvisable to skip too many examples, as later applications would not be intelligible. These comments apply to most of the book.

Chapter 3 covers linear functions and matrix algebra. Matrices are presented as an example of a linear mapping while determinants are introduced as functionals before the usual expansion formula is given. Linear programming, Duality theory and theorems of the alternative on systems of inequalities are among notable substantial examples. There are very few computational illustrations.

Chapter 4 is a short formal treatment of multivariate calculus. The derivative is introduced as the best linear approximation to a function in terms of minimising the relative error. Partial and directional derivatives are defined subsequently. The author calls his approach 'top-down', which contrasts with the 'conventional bottom-up approach' (p. 439). This is true but their relative advantages are not discussed. There follows a more traditional exposition of results and another look at homogeneous convex, quasiconcave and pseudoconcave functions.

Chapter 5 covers unconstrained, equality constrained and inequality constrained optimisation in a fairly thorough manner with many good standard examples from economics and mathematics. The constraint qualifications of non-linear programming are extensively discussed.

Chapter 6 on comparative statics is understandably much shorter. It covers the envelope theorem and has a good section on value functions and duality in economics. Non-optimisation based comparative statics is briefly mentioned.

This is a book for the serious student of microeconomics. Preferably one who has already encountered many of the economic concepts illustrated here, but lacks a formal foundation (in this respect the title of the book is apt). It would be excellent for a first year course in mathematical economics within a two-year doctoral coursework program. It must be gone through almost in its entirety, and would be ungainly as a reference book. Some important topics are omitted in my view, notably difference and differential equations and some continuous time dynamic optimisation, but a choice always has to be made among topics.

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Inspiring Economics. Human Motivation in Political Economy, by Bruno S. Frey. (Edward Elgar, Cheltenham, 2001), pp. x + 236.

Professor Bruno Frey of the University of Zurich, will be well known to readers in the particular field of economics that reaches out towards psychology, a field that might be labelled 'behavioural economics'. He has written a great number of books and articles, and his interests span widely, from the private sphere (marriage paradoxes and the sources of happiness), over workplace motivation (especially the crowding effect) and to macro phenomena, such as the effect of war on capital markets, identification and democracy, popular referenda, etc. The same topics are covered in this book, which he has written with what appear to be a number of his former students, now themselves university professors.

The book consists of an introductory part I and two substantive parts: In part II, 'Integrating psychology', Frey (and his co-authors, they will be implied in the following) deal with how economic incentives may transform psychological anomalies, with marriage paradoxes and with the crowding effect in the work environment. In part III, 'Political Economy', he takes up phenomena which relate perhaps more to political science than to psychology, and where the issues seem to be more societal than localised.

Frey is both 'for' and 'against' economics. He is 'for' in the sense that – contrary to many others, who criticise economic theory – he is willing to pursue economic reasoning for as far as it supplies him with novel, non-intuitive insights. He is 'against' in the sense that in his view economics should and must import insights from other social sciences in order to make up for the great number of anomalies, which haunt economic theory proper. Frey is not short of examples of these anomalies, and his constant spraying of examples and how they undermine particular parts of economic theory makes this book an entertaining and lively read.

Frey draws most heavily on (social) psychology, when he suggests imports into economic theory. He does this, for example, in the chapters on work motivation, where his main argument is to show how the price mechanism – the very basis of economic theory – can and often is completely annulled in the working environment, as intrinsic motivation will often safeguard greater work effort than economic incentives, and the latter 'crowd out' the former, when employed too heavily. This point of view will come as no surprise, however, to students of HRM, where Frey's view most certainly *is* the orthodoxy. What motivated this reviewer especially about these chapters was whether Frey would be willing this time to discuss at greater length the possibility of crowding *in*, that is, situations where economic and intrinsic motivators may indeed positively reinforce one another. This would clearly be relevant, given the greater interest in economic motivation theory, reward management, public sector 'New Pay', etc. these years. Unfortunately, this discussion is not taken very far, though. The main emphasis is still on crowding out. Crowding out appears when intrinsically motivated employees are transferred to a pay system, which places more heavy emphasis on economic incentives. This to many will appear demeaning, and employees' intrinsic motivation will become crowded out by 'money thinking'.

What Frey seems to ignore, when he completely dismisses the motivational role of pay, is that the problems he discusses are relevant only to particular forms of economic motivational pay systems, where performance and pay are linked very directly and often on an individual basis. Will Frey also imply that pay issues cannot influence decisions to apply (and where to apply) for a job, decisions to quit, decisions to seek promotion or not, or even that the individual's annual pay review cannot be seen as an economic, extrinsic motivator of some effect?

Also, there is too little discussion of whether pay can enhance intrinsic motivation. High pay, after all, is a generally recognisable good, which recipients evaluate not only in terms of the *material value* (what it will buy), but also in terms of the *symbolic value* (of being a better paid employee).

As noted, it is the intersection between economics and social psychology that is of special interest to Frey. This supplies a number of interesting insights, but it would appear that recent contributions in rational choice sociology (Coleman 1990; Elster 1989) might be helpful. Thus, in his discussion of aspects of game theory, where he has even conducted a small-scale experiment with students himself, the well-known argument that both discussion and identification will minimise the Prisoner's Dilemma problems. From a sociological point of view, though, what Frey refers to as 'other-regardedness', following from mutual discussion or identification of players, might also be thought of as social norms, which become activated under particular conditions: norms or fairness or maybe even norms of equality, when it comes to sharing the spoils from 'gains from luck'.

In fact, like with many of the other points made in the book, it is not the first time Frey makes them concerning work motivation (e.g. Frey 1997), and extending into sociology or institutional economics might be a way of adding to his already well-rehearsed theoretical repertoire.

Although many of the 'anomalies' and 'paradoxes' in Frey's repertoire appear intuitive and entertaining, sometimes they do seem to be taking him a bit far. Thus, when Frey notes under as a 'marriage paradox' that 'people search surprisingly little for suitable marriage partners' (p. 38), I must confess as my view of young people from their teens until they marry that, while they may from time to time be studying, working, commuting or talking to their parents, life at this age has to do with little else than finding the right partner. To state a supportive of his argument that 'a considerable number of men and women marry their first, reasonably serious, partner' and quotes a table showing that still today, approximately one-third of all first unions were formal marriages (p. 39), this would appear to be a reasonably one-dimensional view of what it means to 'search for a partner'!

Summing it up, the book is probably intended for undergraduate students, written as it is in a lively style, avoiding technicalities and jargon, even avoiding footnotes and referencing in the text. It contains good food for thought for students who have maybe just taken their first course in introductory macroeconomics. For readers of Frey's earlier opus, not much is new here, but as an introduction to this particular tradition in economics, it serves its introductory purpose well.

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Free Trade Under Fire, by Douglas A. Irwin (Princeton University Press, Princeton & Oxford, 2002), pp. x + 257.

Free Trade Today, by Jagdish Bhagwati (Princeton University Press, Princeton & Oxford, 2002), pp. ix + 128.

In late-1998, an international survey was conducted on popular opinion about trade. When asked 'Is protectionism or free trade better for our country's prosperity?', Americans favoured protectionism by 56 to 37 per cent. The same survey conducted in Australia found that an even higher proportion of Australians than Americans were protectionists – despite the fact that trade makes up nearly twice as large a share of the Australian economy than in the USA. In 1998, Australian protectionists outnumbered free traders by nearly two to one.

Yet in the mainstream economics profession, probably no position is more broadly accepted than the simple notion that free trade boosts social welfare. It is with this case that Douglas Irwin's *Free Trade Under Fire* begins. In making the argument, he cites many of the most famous nostrums about trade: the theory of comparative advantage as the best example of a 'true and non-trivial proposition' in the social sciences (Paul Samuelson); that protectionism 'provides large benefits to a small number of people, and causes a very great number of consumers a slight loss' (Vilfredo Pareto), that a country should not throw rocks in its harbours simply because others have rocks in theirs (Joan Robinson), and that 'No nation was ever ruined by trade' (Benjamin Franklin).

Irwin articulates the free trade position with a lucidity that makes the first few chapters of the book equally suitable for either a reader coming to the issue for the first time, or a professor priming for an introductory lecture on the benefits of trade. Although his examples are predominantly American, Irwin places free trade in a larger historical context – revealing the research that went into his 1996 work *Against the Tide: An Intellectual History of Free Trade*. He is careful to cover the benefits of free trade from both a developed and developing country perspective, and to point out the risks in basing the case for free trade on higher employment, rather than on national income. Irwin also employs some less conventional arguments, as for example when he draws attention to fact that tariffs cause welfare losses not only by raising prices, but also by reducing the range of available products – an argument doubtless familiar to many an Australian auto enthusiast.

However, the meat of Irwin's book is in his discussion of recent developments in trade policy. He makes an effective case against targeted trade adjustment assistance, arguing that there is no reason not to provide equal assistance to those who lose their jobs as a result of technological advances. He is highly critical of the 'privatisation' of USA trade policy through Section 201 and 301 actions. He takes fire at the politicised morass of today's anti-dumping actions (recent figures show that a record 348 anti-dumping actions were initiated in 2001). Finally, Irwin meticulously makes the argument – with detailed discussion of several of the relevant World Trade Organisation (WTO) cases – against the use of trade agreements as a tool to advance environmental and labour standards.

While Irwin effectively answers the main claims of anti-globalisation protestors, one feels the absence in this section of the keen historical analysis presented in the earlier pages. Why does the WTO attract the ire of so many citizens? Why has the WTO, along with the International

Monetary Fund, the World Bank, and the economics profession more generally, been so ineffective in winning the popular debate over trade? Perhaps, as a player in the debate, Irwin is unable to step back and analyse these issues as he does with the history of thinking on trade in the 19th and 20th centuries.

Jagdish Bhagwati's *Free Trade Today* consists of a trio of lectures delivered at the Stockholm School of Economics, a sequel to his 1987 lectures, which were published as *Protectionism* (1988). Bhagwati is a leading intellect among free traders today, having written extensively on the topic in both academic and popular publications, and numbering among his former students Gene Grossman, Douglas Irwin and Paul Krugman. As one might expect of a series of lectures pitched at economists, the work is both more theoretical and more personal than Irwin's *Free Trade Under Fire*.

The first lecture deals with the history of thinking on free trade, and the factors which have led a number of academics outside economics to repudiate the notion that the dismal science has any special expertise on the topic (Bhagwati traces the origins of this view to Jacques Derrida and the poststructural deconstructionism movement). The subsequent dry discussion of trade thinking in the 1980s and 1990s is probably the least interesting part of the work, in part because it is difficult for the reader to distinguish which parts of the chapter are novel, and which are a recitation of known facts.

The great strength of Bhagwati's book is in his second and third lectures – particularly his analysis of labour standards and preferential trade agreements. On the issue of labour standards, Bhagwati's approach is more bullish than Irwin's – pointing out the USA's poor record on labour standards, and accusing it of 'cynical exploitation of moral issues for de facto protectionism'. He also warns that sanctions against goods produced with child labour could well force children in developing nations into unregulated and perhaps more dangerous industries, including prostitution. As an alternative to the blunt stick of trade sanctions, Bhagwati suggests a mix of mandatory standards (requiring multinationals headquartered in developed countries to adhere to core labour standards) and voluntary standards (encouraging certification regimes such as the Social Accountability Label).

Bhagwati reserves his greatest wrath, however, for drafters of 'preferential trade agreements' (PTA) (a term he insists is a more accurate description than 'free trade agreements', as the latter term can gull politicians into thinking that they are a means to free trade). He puts forward three reasons why PTAs are 'a pox on the world trading system'. First, they are often trade diverting, not trade creating – and hence projected gains are often illusory. Second, they hamper multilateral trade negotiations, as they sap the energy of trade negotiators, and produce a 'spaghetti bowl' of agreements to be traversed. Third, Bhagwati contends that PTAs hurt poor nations, as it is these countries who are the least well equipped to conduct bilateral negotiations. All three arguments might usefully be considered by Australian politicians and bureaucrats currently negotiating an Australia–USA trade agreement.

Both Irwin and Bhagwati's books are appropriate for Australian economists and policymakers alike. Not only are do they provide important facts and insights, they also make the case for greater involvement by free traders in the public arena. As Professor Bhagwati argues (recalling his debate against would-be politician Ralph Nader): 'unless we confront these misguided critics, the public-policy stage will be occupied solely by the critics of free trade, and then politicians cannot be blamed for having to listen and attend the chorus of free trade's critics'.

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Public Enterprise Disinvestment: Australian Case Studies, by Fran Collyer, Jim McMaster and Roger Wettenhall (Pacific Institute of Management and Development, 2001), pp. 186.

In their Introduction to *Public Enterprise Disinvestment: Australian Case Studies*, the authors declare three main aims. First, to develop case studies of privatisation in Australia and thereby provide teaching material that is currently unavailable. Secondly (their 'primary aim'), to show how privatisation has been impacting on Australia. Thirdly, to set these particular experiences against a bigger picture of the worldwide movement toward privatisation.

The authors report on nine cases that cover a variety of Australian jurisdictions, industry sectors and divestment methods. The case studies on the sale of the Commonwealth Serum Laboratories (now CSL), Government Insurance Office of NSW (now part of AMP), and Victoria's Totaliser Agency Board (now Tabcorp) describe public floats. The studies of the State Bank of South Australia and the Belconnen Mall describe trade sales. The chapters on the NSW Grain Corporation and the Sydney Fish Market discuss industry buyouts. The story of the Snowy Mountain Engineering Corporation discusses a management buyout. Finally, the chapter on the Port Macquarie Base Hospital describes a private build, operate and own operation of a 'public hospital'.

The case studies are essentially descriptive histories. As the authors note, they generally sought to present the history of the organisation, the reasons for government involvement, the operating systems of the enterprise before privatisation, the arguments put forward for and against privatisation, the state of the enterprise at the time of the privatisation, the administrative preparations for privatisation, and any significant events surrounding the 'hand-over process'. The authors also aimed to provide information on the past financial performance of the organisation, indicators of performance after privatisation, and distributional impacts.

This approach is consistently achieved across the case studies. An indication of how this was done may be gained by a short summary here of three cases. Take first the trade sale of the Bank of South Australia to the then Advance Bank (now part of St. George Bank). The case study describes the history of the bank from its origin in 1847, its growth over 90 years and the financial debacle in the late 1980s, and discusses at some length the causes of this debacle (attributed mainly to some very poor senior appointments). Most of the rest of the case study describes the decision to sell and related arguments, the preparation of the organisation for the sale, and the method of sale. The case study concludes with four paragraphs on 'the bank since the sale'.

The public float of the Victorian Totalisator Agency Board (TAB) in 1992 was one of the first sales by the Victorian Kennet government. The first third of the case study describes the establishment of the Victorian TAB in 1960, along with the public reasons for it (to reduce the social evils and tax avoidance associated with black market off-course betting) and the operations and main players in the TAB to the late 1980s. Most of the rest of the case study describes the disposal process, a reconstruction of the board of the TAB, preparation for the sale, negotiations with the racing industry, and the sale process. The last two pages briefly describe some postsale business deals, including settlement of some outstanding presale matters, and some profit and share price figures.

Possibly the most interesting case study in the book is the discussion of the sale of the Commonwealth Serum Laboratories (CSL) because this includes a discussion of the monopoly status of the organisation and the public good nature of the services, and slightly more discussion of postsale performance than the other case studies do. However, again, most of the case study describes the evolution of the organisation in public ownership and the sale process.

Drawing on the nine case studies, the authors derive three main lessons. First, long-term financial returns played very little part in the decision to privatise. In all cases, 'it appears that the citizens of Australia have not been adequately compensated for the loss of a previously collectively owned asset'. The authors do show that governments were concerned mainly with short-term issues. However, it is not clear that they prove a general lack of adequate compensation for the organisation based on its performance in public ownership.

Second, the authors note correctly the considerable transformation of many of the organisations in the preparation for the sale, including assistance from government, and argue that this transformation and assistance were largely responsible for the success of the organisations postsale, and infer that the sale was not necessary. However the inference assumes, not necessarily correctly, that that the organisational transformations would have occurred in the absence of the privatisations.

Third, the authors report that there is a consistent pattern of winners and losers from the privatisations. The winners were the financial institutions, the new shareholders and private consultants. The main losers were the workers in the presale organisations and future taxpayers. The case studies provide a fair amount of evidence for this set of conclusions, but the evidence is presented anecdotally rather than systematically.

Overall, the case studies lack a systemic evaluation framework. There is no statement or consistent application of a steady set of evaluation criteria, still less an articulated social welfare function. Such a function would presumably embrace the interests of shareholders, workers and consumers before and after privatisation. In the absence of weighting, this would of course equal the sum of producer and consumer surpluses (plus externalities, if any). Naturally, such an evaluation requires assumptions about the counterfactual, what would have happened to the organisation if it had not been privatised.

As most economists know, returns to shareholders, workers and consumers are driven by improved allocations of resources: by productivity improvements, more efficient pricing and by the development of new services. There is little discussion of these issues in any of the case studies.

Like another recent Australian book on privatisation (Walker & Walker 2001), the authors focus primarily on the value of the sale to government. Thus, Walker and Walker claim that with the sale price of CSL rising from \$2.30 at sale time in 1994 to \$23 in 1999, this was one of the worst Australian privatisations. Actually, this share price movement could indicate that this was one of the most effective local privatisations!

However, international studies such as Vickers and Yarrow (1991) have emphasised the primacy of industrial efficiency. Indeed Vickers and Yarrow point out that maximising the sale price may be inconsistent with improvements in industrial efficiency. In a recent major review of privatisation, Megginson and Netter (2001) conclude that

> 'The studies cited here almost unanimously report increases in performance associated with privatisation. This consistency is perhaps the most telling result we report – privatisation appears to improve performance in many difference ways, in many different countries.'

Do the authors of *Public Enterprise Disinvestment: Australian Case Studies* achieve their main objectives and is the book useful to economics or business students? First, the book does provide some useful course material on nine privatisation studies that is not available elsewhere and it is interesting reading. It will help students to understand some of the politics and administrative issues of privatisation. However, lacking a systematic economic framework it is less helpful on economic issues and cannot be considered a primary teaching resource for economics courses.

Nor, in this reviewer's opinion, does the book achieve the second and third objectives of the authors. The discussion of the impacts of privatisation postsale is generally slight, does not deal with critical productivity and resource allocation issues, and does not discuss the counterfactuals. Also there is little comparison with international privatisations. A satisfactory economic assessment of the Australian privatisation programs of the 1990s based on industrial efficiency or, more comprehensively, a suitably articulated social welfare function remains to be done.

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The Theory of Incentives: The Principal-Agent Model, by Jean-Jacques Laffont and David Martimort (Princeton University Press, New Jersey, 2002), pp. xii + 421.

This is the first of three proposed volumes on the *Theory of Incentives*. It is not clear that this expression yet has any settled meaning within economics, but the authors characterise its 'two basic ingredients' as 'conflicting objectives and decentralised information' (p. 2). This first volume examines bilateral transactions from a Principal-Agent perspective – that is, when all the bargaining power rests with one party to the transaction. The usual suspects – adverse selection and moral hazard – are here, as are various hybrid models (including hold-up problems) and trading mechanisms that exploit observable but non-contractible information. However, signalling models, which are often treated in conjunction with moral hazard and adverse selection, are absent.

For Volume II, it is proposed to consider multiagent models, while Volume III will take up a range of extensions and elaborations. Despite their epic three-volume ambitions, the authors' claim not to be aiming at an encyclopedic reference. Instead, their stated objective is a relatively straightforward exposition of key ideas and results. To this end, they have produced a nicely unified presentation, consistently based around a couple of simple models. However, the book's breadth of coverage is not inconsiderable, and it describes recent developments in unrivalled depth.

Readers familiar with the literature in this area will recognise the general style of presentation. Laffont and Martimort focus is on the gritty details of formal modelling. Variations on two basic models (one each for adverse selection and moral hazard) are carefully specified and solved, with conclusions gathered into formal propositions. The text is liberally sprinkled with applications (some fully developed, others briefly sketched), and the authors do attempt to provide as much intuition for results as possible, but the book is very much an exercise in the analysis of first-order conditions. Whenever the exposition aims to interpret or synthesise ideas, it always seems constrained by the specifics of the model at hand.

For those already acquainted with the area, and who seek a more detailed understanding for research purposes, there is much insight to be found within the book's pages. For the beginner, it offers a thorough, up-to-date and accessible treatment; but be prepared for a painstaking 'bottom up' process of knowledge building.

The authors state that the book is aimed at 'undergraduate and first year graduate students in economics' (p. xi).[1] It is divided into elementary material, and starred chapters or sections, which are more technically demanding.

Almost half of the book's 400 pages fall into the latter (starred) category. However, even the non-starred sections require some knowledge of Kuhn–Tucker techniques, which is likely to exclude very many undergraduates in this part of the world. As currently written, the book seems best placed as a graduate text on the economics of information; or its non-starred sections could be used, in conjunction with additional references on game theory, etc., for a typical second graduate course in microeconomics. Having read these non-starred sections first, I can confirm that they are self-contained, as one would like.

The book does suffer from one serious drawback as a teaching text: there are no exercises. Given its emphasis on mathematical modelling, the book's content cannot be properly mastered in the passive mode. It is indeed unfortunate that Messrs. Laffont and Martimort chose not to provide the reader with opportunities to engage more actively with the ideas and techniques.

So what does one get for one's $RRP (less applicable discounts)? The 'lite' (i.e. non-starred) option first. The opening chapter gives an historical and thematic overview of incentive theory. I found this chapter intriguing but flawed. There is much to entertain the cognoscenti, with some fascinating quotations and observations on the historical precursors to modern ideas. However, the chapter fails, in my view, to give the novitiate a useful sense of the connections among the ideas or their relationship with the more familiar terrain of price theory and general equilibrium.

The core non-starred material is contained in Chapters 2, 4, 6 and 8. The first two of these give attractive expositions of the simplest adverse selection and moral hazard problems, respectively. The former is particularly well executed.

The latter is nicely done, but employs Kuhn–Tucker methods when more elementary (and illuminating) arguments would suffice, unnecessarily reducing the accessibility of the material. Both chapters cover a nice range of twists on the basic model, and I like the way that these are incorporated into the body of the text, rather than awkwardly relegated to appendices or brief 'extension' sections, as is so often the case. There is also a good selection of applications at the end of each chapter. Chapter 2 contains a very readable introduction to the Revelation Principle; an important conceptual foundation for contracting under asymmetric information that is often omitted in introductory texts.

Chapter 6 tackles transactions based on symmetric but non-contractible ('non-verifiable') information. Efficient trading necessitates the use of strategic mechanisms, so a little game theory is introduced (although prior familiarity with the basics of strategic form games is probably required for full comprehension). The material here is conceptually challenging, and the authors provide only minimal assistance to the reader in gaining an intuitive understanding of the results. A brave and thought-provoking addition to their text; but only a qualified success in my view.

Chapter 8 gives a very accessible treatment of repeated adverse selection and moral hazard problems. These are important extensions to the basic models, and I have not seen them treated

[1] Apparently, the search for that much prized but highly elusive creature – the 'advanced undergraduate' – has been abandoned!

in such a thorough yet uncomplicated fashion elsewhere.

The starred chapters (3, 5 and 7) focus largely on higher-dimensional and hybrid models. Chapter 3 covers (inter alia) adverse selection with more than two types, and also covers a very readable introduction to multidimensional screening. This new and difficult topic is typically ignored or mentioned only briefly in other books on incentive theory. Chapter 3 is also where one encounters models with type-dependent reservation utilities.

This is unfortunate, as readers of the unstarred material therefore miss out on one of the most famous and useful applications of adverse selection – Stiglitz's (1977) monopoly insurance model. There is also a nice detour into the literature on financial contracts, which employs a slight variation on the standard adverse selection framework.

Chapter 5 is the moral hazard companion to Chapter 3. It works through the difficulties encountered when the Agent has more than two action choices – including a detailed discussion of the 'first-order approach' to the continuum case – or multidimensional actions. Once again, it is rare to find such a careful discussion of the multizdimensional case in the textbook literature.

Finally, Chapter 7 studies various hybrids of adverse selection, moral hazard and mechanisms based on commonly observed but non-verifiable signals.

The book ends with a chapter of miscellaneous extensions: four non-starred (including the famous 'hold-up' problem), and four starred.

Overall, the book is an impressive attempt to convey a large number of ideas within a fairly simple and unified framework. There is genuine novelty in many aspects to the exposition, and the depth of coverage of recent and non-standard material is considerable. I also appreciated the numerous and wide-ranging applications, even if some were only hinted at, and the guides to further reading at the ends of sections.

Most microeconomists, I imagine, will want to have a copy of Laffont and Martimort's book on their bookshelves. The style of presentation, with its focus on modelling techniques and (occasionally, seemingly endless) variations on a theme, will not be to everyone's taste or meet every need, but there is certainly something new, substantial and authoritative on offer here.

REFERENCE

Stiglitz, J. (1977) 'Monopoly Non-Linear Pricing and Imperfect Information The Insurance Market', *Review of Economic Studies* **44**, 407–30.

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