The Economic Journal, **113** (*November*), F653–F688. Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA.

BOOK REVIEWS

Patents, Citations & Innovations: A Window on the Knowledge Economy. By Jaffe (Adam B.), Trajtenberg (Manuel) and Foreword By Paul M. Romer. (Cambridge, MA. and London: MIT Press, 2002. Pp. xiii+478. £33.50 hardback. ISBN 0 262 10095 9.)

This is an important book that will influence future research on R&D and innovation. It brings together a number of pioneering papers by Adam Jaffe and Manuel Trajtenberg (and various co-authors) on the use of patent citations to study the innovation process, plus several new pieces of work. The book is organised in four parts. The papers in Part 1 lay the 'conceptual' groundwork for research on patent citations. The first is the classic paper by Trajtenberg demonstrating that citations are linked to demand-based measures of social surplus for one important medical innovation, CT scanners. Making this link between *patent citations and social* (*and private*) *value* provides powerful justification for using citations in economic studies. It is surprising and unfortunate that there have not been similar studies on other innovations, despite the huge growth of empirical work on vertically differentiated product markets.

The second paper shifts the focus to *patent citations as an indicator of knowledge spillovers*. The authors develop various useful measures based on citations – including patent importance, patent generality, and distance between patents in technology space and time. They show that there are strong differences between corporate and university patents in these measures, in ways we would expect (e.g., university patents are more general). The use of patent citations to measure positive knowledge spillovers has become a major theme, and a practical tool, in the innovation literature.

But it is important to recognise that patent citations may also indicate greater activity by others in the same or related technology fields and thus reflect greater potential competition in innovation. On this account, patent citations may have a negative effect on firm profits. The third paper, by Caballero and Jaffe, develops a model of economic growth that incorporates, for the first time, both endogenous obsolescence and knowledge spillovers. This was the first paper to use patent citations data in a growth model and to explore the *dual role of patent citations as measures of positive knowledge transfers and negative spillovers due to innovation competition.*

The papers in Part 2 use patent citations to trace the *geography of knowledge transfers.* First is the well-known paper showing the patent citations (and thus the knowledge spillovers they represent) are more geographically localised than one would expect from random citations. The second paper examines the pattern of citations by private firms to patents originating in universities and federal research laboratories. The authors develop new and useful techniques to estimate the effects of citations over time and across spatial boundaries. The last paper examines the international flows of patent citations. Using citations in this context holds the potential for a quantitative assessment of international diffusion in technology and the 'balance of trade' in knowledge spillovers.

Part 3 uses citations data to evaluate the effectiveness of institutions and policies on the generation and transfer of knowledge. One paper examines the explosion of university patenting in the United States over the last three decades and shows that university patents are both more 'important' and more 'general' than those produced by the private sector, as measured by citations, but also that this difference declined over time and had largely disappeared by the late 1980s. This analysis implies that the rapid growth in university patenting overstates the real growth in innovation output from that sector. Three other papers in Part 3 examine patenting activity in NASA, other federal research laboratories, and Israeli firms from a similar methodological perspective.

Part 4 begins with a new paper that provides interesting survey evidence from citing and cited inventors about what citations actually represent. This is an important, first attempt to get inside the 'black box' of citations. It may not be surprising, but nonetheless reassuring, that the survey evidence confirms that citations reflect knowledge spillovers as perceived by the participants, albeit with a lot of noise.

The last paper in the book provides a detailed guide to the NBER patents-citations data set on more than three million citations to patents in the United States, with many insights about how such data can be used. In addition to the authors, Bronwyn Hall deserves real credit for doing the painstaking work in constructing this unique dataset. The book includes a CD with the dataset. By providing everyone access to this rich data source, research in this area will be greatly facilitated.

The research in this book leaves no doubt about the usefulness of patent citations data for economic studies of innovation and growth. But it is important to remember that citations contain information about three distinct, but related, things: the social value of innovations, pure knowledge flows, and the extent of competitive erosion of innovation rents. The interpretation given to patent citations varies across the papers in this book. It remains for future research to disentangle these roles more fully.

The research in this book, and the patent citations database, represent a major contribution to the field that will be highly influential for years to come. We are all indebted to the authors, especially in view of the fact that only a small part of the social returns are likely to be privately appropriated.

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Bertil Ohlin: A Centennial Celebration (1899–1999). Edited by Findlay (Ronald), Jonung (Lars) and Lundahl (Mats) (Cambridge, MA. and London: MIT Press, 2002. Pp. Xvi+546. £41.50 hardback. ISBN 0 262 0 6228 3.)

This is a conference volume, but with a difference. It is a celebration and evaluation of the life and legacy of Bertil Ohlin, a name familiar to all economists. To quote the editors (page 5), 'the purpose of this volume, emanating from the centennial of Bertil Ohlin's birth, is to give a portrait of the man, his life, his contributions to international economics and macroeconomics, his journalism, and his many years at the centre of Swedish politics, with the emphasis on Ohlin the economist, even though he spent most of his active life in politics'. The resulting volume contains diverse material, but there are nuggets here for a wide range of interests.

Ohlin the man emerges throughout the book, but is the focus of the first two parts, and it is worth noting that most other biographical material is available only in Swedish. These chapters contain reminiscences from his three children, and academic and political colleagues. Some chapters can be singled out. Chapter 5, by Bo Sandelin, uses the Social Science Citation Index to filter out Ohlin's lasting contributions. Citations have been increasingly concentrated on three works: *Interregional and International Trade* (1933); and Ohlin's articles in this Journal on the German reparations (in 1929) and on the Stockholm School (in 1937). No surprises there.

In chapter 8, Rolf Henriksson attempts to disentangle the contributions of Heckscher and Ohlin to the model that bears their names, apparently a matter of some contention between them. Chapter 9 is an English translation of Ohlin's dissertation for the degree of *licentiat* in economics. Although the content will primarily be of historical interest, since the main themes are reflected in Ohlin's later and better known work, the style is interesting for what it tells us about the man and for its contrast with the way in which trade theory is presented today. For those unable to make it through Ohlin's dissertation, the next chapter provides an interesting commentary by Harry Flam and June Flanders, including a discussion of Ohlin's attempts to argue that factor price equalisation was a theoretical impossibility, and his comments on the role of economies of scale.

Ohlin's contributions to macroeconomics are discussed in Part III. The highlight here is the appraisal, by Robert Mundell in Chapter 12, of the debate between Ohlin and Keynes over what has become known as the Transfer Problem, and in which Ohlin is the acknowledged victor. Unsurprisingly, given his later public role, Ohlin was also actively engaged in policy development during the Depression years, although here his contribution seems to have been more modest. Readers familiar with the political economy of trade policy may be less than impressed with the view that tariffs be used to reduce cyclical unemployment.

The final two parts of the volume are concerned with assessing the legacy of Ohlin's contribution to trade theory, and these are the chapters likely to be of most general interest. Ron Jones (chapter 16) provides a neat analysis of the factor proportions model and its subsequent generalisations, showing that many of

Ohlin's original insights are preserved. Don Davis and David Weinstein (chapter 17) attempt to convince us that empirical work on trade has been unjustifiably neglected, both in terms of inputs and the attention paid to its output (at least by theorists). They acknowledge the difficulties of testing general equilibrium theories, but claim times are changing. Paul Krugman (chapter 18) makes the 'startling discovery' (page 390) of the extent to which Ohlin anticipates the concerns of new trade theory, but later relaxes when it turns out that Ohlin did not invent new trade theory or economic geography.

The factor proportions model (broadly interpreted) is applied to a range of historical questions in lively and imaginative ways in the final four chapters. Here readers can find out whether US tariffs raised or reduced real wages in the 19th Century (Douglas Irwin in chapter 19); for which episodes between 1400 and 2000 these models are able to explain international factor price convergence (Kevin O'Rourke and Jeffrey Williamson in chapter 20); whether H-O-Vanek techniques are as (un)successful in explaining trade in 1913 as they are now (Antoni Estavadeordal and Alan Taylor in chapter 21); and their value in modelling the effects of plagues and the influx of new world silver (Ron Findlay and Mats Lundahl in chapter 22). Obviously this was not the occasion for strong criticism of the factor proportions model, and readers should look out for instances of lukewarm support.

In summary, this is an interesting volume, although of a type that few will feel the need to purchase individually. Definitely one for the University Library, however, with student friendly material in the final two parts in particular.

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Going Alone: The Case for Relaxed Reciprocity in Freeing Trade. Edited by BHAGWATI (JAGDISH). (Cambridge, MA. and London: MIT Press, 2002. Pp. xii+586. £39.95 hardback. ISBN 0 262 02521 3.)

This book is about the economics and politics of trade liberalisation. 'Going alone' refers to unilateral liberalisation, when one country reduces its trade barriers unconditionally and independent of what any other does. The contrast, which is also studied explicitly, is reciprocity in which a country's trade liberalisation is conditional on another's or with some other *quid pro quo* such as a loan from the World Bank.

Bhagwati's introduction defines three propositions on the economics of trade liberalisation: liberalise alone if you have to; if others also liberalise, so much the better; maybe a unilateral liberalisation will beget subsequent liberalisations by others. It also identifies three important factors in the political economy of liberalisation – ideas, interests and institutions. As we might expect, these propositions and factors are recurring themes in subsequent chapters, which provide historical accounts, country studies and sectoral studies. Collectively they illustrate that unilateralism and reciprocity are complex and often subtle issues.

The first historical chapter is by John Conybeare on British liberalisation in the mid-nineteenth century. The contemporary rhetoric was that it would induce liberalisation elsewhere, whereas later analyses tended to argue that it did not. Conybeare argues that, at present, it is just not possible to tell. The second study – of the twentieth century United States by Douglas Irwin – identifies a very positive role for reciprocity. For most its history the United States had proved unable to reduce protection much because trade policy was the domain of Congress, dominated by special interests. After the disastrous Smoot-Hawley tariff of 1929, Congress largely surrendered control to the Executive but only for negotiated (i.e. reciprocal) tariff cuts. Irwin argues that reciprocity was the key to unlocking trade barriers during the inward-looking 1930s because it more clearly identified potential gainers from the liberalisation (export interests). The significance of this is not the US' liberalisation of the 1930s, which was relatively small, but rather that the logic and procedures of US reciprocity were built into the post-war GATT.

Michael Finger *et al's* analysis of the GATT's Uruguay Round is highly instructive. It was far from simply reciprocal. In general developing countries made more concessions than they received, but among both developed and developing countries there are large differences between offers and receipts. Finger finds that negotiators never made explicit calculations of reciprocity: politically they could never admit to giving up anything, so precluding explicit trade-offs, but also the prevailing vision of the GATT was as a global system, to which countries contributed (according to ability) by reducing tariffs. In other words GATT required 'relaxed reciprocity' whereby perceived benefits and costs were not necessarily balanced round by round. This view of the GATT is altogether more subtle than the simple strict reciprocity that most economists think of.

It is striking that so many unilateral liberalisations date from the mid-1980s. Given the diversity of country circumstances this suggests an important role for ideas. Ross Garnaut, on Australia, and Lewis Evans and Martin Richardson, on New Zealand, expressly note the importance of ideas (about both objectives and how the economy functioned), and they also figure prominently in Sebastian Edward's and Daniel Lederman's account of Chile. The intellectual argument for liberalisation is far broader than just trade policy and this helps to explain why trade reform was embedded in a wider programme. This seems to make it less vulnerable to reversal, because losers from trade reforms will often be compensated by reforms elsewhere, and also to reduce concerns about reciprocity by other countries, because the package is explicitly just a national affair. Compensation is a feature of many unilateral liberalisations, probably more so than with reciprocal ones, for in the latter, governments can appeal to foreign policy considerations to justify sacrifices. Even the Pinochet regime in Chile was careful to provide compensation for many agents, both through general reforms (e.g. of labour markets, a very competitive exchange rate) and in specific ways (e.g. price bands for certain agricultural goods). The use of such pragmatism where it seems least necessary politically, provides an important general lesson.

Notable points among the other case-studies – all of which provide much food for thought, include: the role of the Bretton Woods institutions in East Asia, which, Arvind Panagariya argues, makes most of the single-country liberalisation *de facto* reciprocal; the inability of governments to regulate telecoms in the face of technological change and hence its relatively liberal character (Cynthia Beltz Soltys);

the constructive role of regional reciprocity in fostering non-discriminatory liberalism as argued by Rachel McCulloch (an argument I find unconvincing) and the overwhelming role of institutional change in freeing Eastern Europe's trade (Patrick Messerlin).

Overall, this is a fine and full volume. All the chapters contribute something and there is a pleasing coherence between them. As T. N. Srinivasan notes on the book's jacket, this is where future analyses of unilateralism or reciprocity must start.

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Economic Policy for Aging Societies. Edited by Siebert (Horst). (Berlin, Heidelberg and New York: Springer, 2002. Pp. x+305. ISBN 3 540 43227 2.)

Themes in the Economics of Aging. Edited by Wise (David A.). (Chicago and London: University of Chicago Press, 2001. Pp. ix+402. US $75.00 hardback. ISBN 0 226 90284 6.)

The volume edited by David Wise is the eighth in a series of Conference volumes stemming from the National Bureau of Economic Research's (NBER) investigations into the economics of ageing. The collection of essays adds to what is already an awesome accumulation of US analysis and data on issues such as retirement behaviour, pensions, saving, health and health care – much of it emanating from this series of volumes from the NBER – which makes UK, and indeed European, economists in the area green with envy. Moreover there are some heavyweight authors among the contributors to this volume.

The first three papers in the volume deal with saving issues. All have resonance in the ongoing debates in the United Kingdom and elsewhere concerning the adequacy of household retirement saving, the role of private pensions and optimal household asset portfolios. Poterba, Venti and Wise construct a cohort-based simulation model of accumulation of assets in 401k plans (employer-provided retirement saving vehicles but with the facility for some 'cashout' of assets pre-retirement). The twin objects are to calculate what levels of accumulation can be expected (relative to, say, accumulated social security rights) and whether pre-retirement cashouts significantly reduce the likely availability of retirement funds. Their answers are (i) substantial accumulations can be expected and (ii) on past behaviour these will not be significantly reduced by cashouts.

Schieber and Shoven examine one of a number of plans put forward to reform US social security which puts greater emphasis on individual, private, retirement saving accounts. The authors ask whether, both in expected return and risk, such accounts would likely provide higher incomes to retirees than the existing, publicly financed social security programme. The answer of course depends on the costs of running the private system of accounts and on the expected return to the plans and the volatility thereof – however the authors conclude that, in general, such a plan is viable. The authors do not fully spell out their model of volatility of investment returns (which is a central issue) and they do not discuss the familiar issue of the transition cost as contributions are diverted from paying existing retirees into the new personal accounts. The best way of undertaking risk analysis in this context, in my view, is to ask: what is the probability given the assumptions, that an individual with cohort x with characteristics y would be worse off than under the *status quo*?

Jeffrey Brown re-examines the issue raised in an influential paper by Douglas Bernheim (1991) namely: do individuals use life insurance to offset over-annuitisation? This relates to the issue of why people simultaneously have life insurance and own annuitisable funds – the former permitting a bequest motive whilst the latter does not (other than to immediate survivors). Brown's answer is that individuals do not use life insurance to offset annuities, contrary to the message commonly associated with Bernheim's work.

Deaton and Paxson provide a careful study of the relationship between income inequality and mortality, using US data. We know that, in general, poorer health and higher risk of mortality is associated with lower income (although we have to handle the potential endogeneity of income, distinguish by cohorts, and account for heterogeneity e.g. that young affluent men may be at higher risk of mortality from HIV-AIDS, driving sports cars etc.). The question then is: if income inequality increases, what does this do to overall mortality rates? The authors tentatively conclude that the data for the United States in the late 1970s and early 1980s suggest that higher inequality is associated with *lower* mortality, but that the qualifications to this finding render it problematic. In a companion paper, Hurd, McFadden and Merrill conclude that the link between mortality and socio-economic group weakens among the very elderly. They also assess the use of self-reported expectations of mortality as an additional predictor of actual mortality (reflecting heterogeneity unobservable by the researcher).

Space limitations mean that I cannot discuss fully the other interesting papers in this volume. Two of these concentrate on spending on Medicare – its age-related incidence (Geppert and McClellan) and what services induce the rising cost (Cutler and Meara). Eichner, McClellan and Wise try to explain why health insurance plans have large cost differences.

There are two important papers on social security and retirement. One, by Axel Börsch-Supan, looks at disability-related retirement – in particular the impact of the incentives in the social insurance programme. The author merges the Gruber-Wise 'option value' approach to retirement with a probabilistic model of whether the individual's health deteriorates sufficiently to permit retirement under the (typically more generous) disability insurance 'rules'. Coile and Gruber augment the 'implicit tax' approach to retirement incentives, using Health and Retirement Survey data, by using not year-on-year accruals of social security rights but accruals relative to peak values.

Finally, Hurd and Smith use the AHEAD (Asset and Health Dynamics among the Oldest Old) data set to examine actual bequests and expected bequests. In particular, they investigate whether anticipated bequests adapt to new information e.g. as to health status (they do) and whether individuals anticipate substantial dissaving late in life in accord with the Life Cycle Hypothesis of Saving (they also do).

Overall, this volume represents a good account of a mature research programme with much of interest to researchers in the field.

The volume edited by Horst Siebert describes the proceedings of one of the well known Kiel Week Conferences – the 2001 conference devoted to the economics of ageing. This is largely a European affair, covering many dimensions of the economics of ageing. Inevitably, in such circumstances, some contributions use a broad brush to fill in large parts of the canvas whilst other contributions focus on a corner of the artwork. Most, however, go for the former strategy, sometimes overlaying brushwork provided by other contributors.

Ignazio Visco's contribution is not unlike a pot of paint thrown at the whole canvas. Reporting on GE and macro modelling work undertaken at the OECD and elsewhere, he shows that such simulations suggest demographic ageing will reduce *the growth rate per annum* in GDP *per capita* of up to 0.75% a year (although median OECD estimates are perhaps of the order of 0.25–0.5%). This is a very large effect and potential political dynamite given economic targets. It stems largely from the cumulative fiscal imbalance arising from the growing costs of public social security and health care, and the impact of higher taxes on labour supply and saving reducing respectively employment and the capital stock (it is useful in such cases if the exact model structures are spelt out). My own scepticism to such macro-modelling exercises is that it is extremely hard to model any kind of feedback of behavioural responses to growing imbalances and deficits; such cumulative imbalances are also highly sensitive to assumptions concerning initial conditions (Disney, 1996). But, in OECD's defence, someone has to carry out such 'big picture' modelling comparisons, and OECD has developed a programme to analyse the implications of demographic ageing at a time when many member states have their heads in the sand.

Eichengreen and Fifer examine the idea that differential demographic profiles affect relative capital flows in the world economy – the argument being that ageing economies dissave and therefore borrow from (or sell off assets in) 'younger' countries. They are rightly sceptical, pointing to the famous Feldstein-Horioka result. Their own cross country econometric results also cast doubt on this general hypothesis, but their specifications are far from robust – in particular the fixed effect estimates look very different from the other specifications suggesting that the equations are not picking up structural parameters. David Miles, in his analysis of European saving rates, indeed suggests that aggregate capital accumulation is likely to decline as a result of demographic ageing, but persuasively argues that the range of likely estimates is enormous, depending on a variety of factors (extent of bequest motive, extent of pension reform, parameterisation of aggregate production function, etc.).

Other papers in this section suggest that Italian household consumption profiles (broadly) accord with the life cycle model of saving and consumption (Miniaci, Monfardini and Weber), describe trends in aggregate labour supply and participation (Johnson) and construct a theoretical model of the impact of longevity on technical progress (Futagami, Iwaisako and Nakajima).

The second section of the volume is labelled 'Policy Issues'. Bovenberg provides a rather general run through the economics of pensions and in particular the case for adopting a 'mixed' system of public and private provision (not unlike the well-known World Bank approach). This is pretty well trodden territory. Arye Hillman contributes a typically idiosyncratic and entertaining short piece on the role of immigration and, by implication, its feasibility as a means of alleviating demographic imbalance. Summarising his view, it is that proponents of this strategy have not thought the issue through fully (although I know of no serious proponents of such a 'solution' to demographic ageing in Western Europe).

Reinhardt has a more data-oriented piece which correctly argues that there is not much cross-country relationship between spending on health care as a percentage of GDP and demographic structure – a point that I have noted before. He then discusses a number of options for health care services. Of course, the point is that if we treat the country-specific health care programme as a 'fixed effect' (which we would not want to do in policy terms), then different countries are more or less susceptible to health care financing pressures as their populations age according to the design of their programmes. This needs more careful cross-country analysis (the careful studies in the NBER volumes unfortunately focus only on this dimension in the United States). Finally Dennis Mueller and his two discussants provide a discussion of the 'political economy of ageing', focusing on how ageing affects the demand for public goods and for intergenerational transfers.

Summing up, the quality of papers in the Siebert volume is somewhat uneven and the content is disparate. This is often the case in one-off conferences. The NBER volume has a much higher average standard but this is in part because the authors are building on ground well trodden in previous volumes in the series. Transfusions of new issues and contributors should serve to keep the freshness of the NBER programme.

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Applied Computational Economics and Finance. By MIRANDA (MARIO J.) and FACKLER (PAUL L.). (Cambridge, MA. and London: MIT Press, 2002. Pp. xviii+510. £46.50 hardback. ISBN 0 262 13420 9.)

The book 'Applied Computational Economics and Finance' by Mario Miranda and Paul Fackler is a great hands-on introduction to selected computational methods that are useful in economics and finance. With its emphasis on practical numerical methods, its large number of code fragments, and an accompanying toolbox of MATLAB programs, this book enables economists without much prior knowledge of computational methods to quickly learn about standard numerical techniques and to apply them to their own models. The lucid discussion of many detailed examples illustrates the usefulness and applicability of the covered computational methods and will accelerate the learning process of any interested reader.

The book has two quite different parts. The first, which comprises about one-third of the book, covers basic numerical techniques such as solution methods for linear and nonlinear systems of equations, techniques for finite-dimensional optimisation problems, and methods for numerical integration and differentiation and the approximation of functions. The second part covers solution methods for both discrete and continuous time dynamic models and illustrates them in a large number of examples. The book is accompanied by 'CompEcon', a toolbox of MATLAB programs that is available on the second author's web site.

All six chapters in the first part on basic numerical techniques have a fairly similar format. The authors state a selected computational problem and present a fairly small number of numerical solution methods for the stated problem. These presentations are not a formal discussion of numerical analysis and do not include theorems or proofs. Instead the authors typically immediately use examples to highlight the basic ideas of the method under discussion. The examples include fragments of MATLAB code that implement the algorithm (with the exception of the examples for numerical integration and function approximation; for these topics separate subsections introduce more extensive tool kits). Although the examples frequently do not have economic content, they definitely serve the purpose of facilitating the presentation. A particular fine example is the discussion on polynomial interpolation in Chapter 6. The inexperienced reader may at first assume that the monomials x^i, $i = 1,\ldots,n$, together with equally spaced interpolation nodes are a reasonable way to interpolate a function. The authors pick up on this assumption and show by way of an example that this approach can easily lead to huge approximation errors. They then expand this example to introduce Chebychev nodes and subsequently Chebychev polynomials. This approach of presenting the material is very instructive since it not only introduces standard methods but also discusses a fallacy that a computationally naïve economist may encounter.

The second part of the book consists of five chapters that cover computational methods for a comprehensive collection of both discrete-time and continuous-time dynamic models. The structure of this second part is different from that of the first part of the book. The authors always first describe a considerable number of economic models before they discuss a computational technique that can be used to solve these models. For example, Chapter 8 contains seventeen (!) different examples of discrete-time continuous-state dynamic models that stem from a variety of fields and include models from resource economics, industrial organisation, finance, and macroeconomics. Subsequently, Chapter 9 shows how to solve all but one of these models. Similarly, Chapters 10 and 11 introduce and solve a large number of continuous-time models. The discussions of the solution techniques again do not include theorems or proofs but instead have an applied focus. They always include MATLAB codes for the implementation of the solution method and graphical illustrations of the solutions. There is considerable repetition in the discussion of the solutions and the provided code fragments for the various models. This repetition and the large collection of dynamic models should make the last two-thirds of the book a valuable and easy-to-use reference for any researcher who is starting to solve dynamic economic or financial models. It is evident that the authors focus on emphasising the wide applicability of dynamic numerical techniques but do not attempt to provide a broad coverage of existing solution methods.

In the preface of their book the authors state that their main objectives are to demonstrate some essential principles of computational economic models and to make a relatively small number of useful computational tools accessible to many economists. Undoubtedly, the authors have achieved these goals. The book provides a clear and readable introduction to the covered techniques. The many examples and accompanying MATLAB codes will greatly help readers to adapt these methods for their own purposes. The authors also state that they have deliberately omitted many more advanced concepts and methods. As a result the book is neither very comprehensive in its coverage of computational techniques nor on the research frontier in computational economics. Economists with extensive computational knowledge may therefore learn little new from this book. Nevertheless, even they may find this book to be an ideal text for an introductory class or seminar on computational economics, in particular if they intend to extensively cover dynamic models.

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Too Sensational: On the Choice of Exchange Rate Regimes. By Corden (Max W.). (Cambridge, MA. and London: MIT Press, 2002. Pp. xiv+274. £20.50 hardback. ISBN 0 262 03298 8.)

Max Corden has expanded substantially the Ohlin Memorial Lectures that he gave at the Stockholm School of Economics in September 2000. The result is a self-contained, beautifully crafted analysis of the choice of exchange rate regimes for developing countries, particularly those where international capital mobility is significant. This is vintage Corden: lucid and concise presentation of the key theoretical building blocks, application of those building blocks to shed light on the major policy issues at hand, and review of the most relevant country case studies for policy lessons – all very readable and dispensed with uncommon judgement.

After an introductory chapter that takes the reader on a brief tour of the evolution of exchange rate regimes (from the gold standard to managed floating), the author lays out three distinct approaches to exchange rate and monetary policy, namely, the nominal anchor approach, the real targets approach, and the exchange rate stability approach. The nominal anchor approach focuses on the mechanisms and institutions designed to deliver a low rate of inflation – be it fixing the exchange rate to an anchor currency, or adopting an inflation targeting framework for monetary policy under a floating exchange rate. Under the real targets approach, monetary and exchange rate policy are directed at a real target – namely real output or employment; the emphasis here is on how the currency regime influences the country's 'competitiveness' and its ability to achieve internal balance. Finally, the exchange rate stability approach compares regimes on short-run volatility of exchange rates and related transaction costs. Corden argues persuasively that actual regime choice needs to take all three approaches into account.

Using these three approaches as an organising device, Corden goes systematically over the choices for an exchange rate regime: dollarisation, currency unions, currency boards, fixed but adjustable pegs, crawling pegs, target zones, managed floating, and purely floating. Without pretending to capture the subtleties discussed, the following excerpts convey the flavour of the author's conclusions:

(i) under conditions of high capital mobility, the fixed but adjustable regime (FBAR) is inferior to a pure-floating regime (largely because the imperfect credibility of the FBAR, along with the high costs of defending it, make it too fragile);
(ii) in contrast, under conditions of low capital mobility, the FBAR is superior to both the absolutely fixed regime and to the pure floating regime – provided that nominal wages are somewhat inflexible downwards, that devaluation can reduce the real wage, and that the enforcement and distortion costs of capital controls do not outweigh the benefits of the FBAR;
(iii) while target zones get some points for exchange rate stability, this regime suffers from the same serious problems as the FBAR once the limits of the zone are reached;
(iv) if an emerging economy can run budget surpluses in boom times and has no longer-run debt problem, the case against fixed rates is weakened (since the contractionary effect of a negative shock can then be avoided by expansionary fiscal policy);
(v) on the other hand, where fiscal policy itself is the problem and has to be largely taken as given, there is a strong argument for a flexible rate regime;
(vi) while unhedged foreign-currency borrowing can indeed produce contractionary devaluation, day-to-day movement of the exchange rate provides an important incentive for borrowers to hedge against currency risk;
(vii) the exchange rate regime matters very much when there is a negative shock but much less during a boom; and
(viii) when all is said and done, those developing countries that operate in a high capital mobility environment should follow a regime of managed floating, supplemented with an appropriate nominal anchor for monetary policy.

There is much too to be gained from the country case studies that comprise four chapters. These cover the experiences of three Latin American countries (Chile, Brazil, and Mexico), Argentina's currency board experiment, the Asian currency crisis of 1997–8, and European Monetary Union. An appetizer: in Indonesia and Malaysia, and perhaps also in Korea, the explicit or implicit FBAR regime was not a significant cause of the crisis – but the initial FBAR in Thailand and Indonesia contributed to their currency mismatch problems and hence, increased the cost when the crises came.

If I have a quibble or two, it is that the book is relatively light on recent empirical studies of the impact of alternative currency regimes, and that the author might have gone farther in distinguishing between what is necessary and what is sufficient to control the unhedged foreign-currency borrowing problem.

To sum up, this is a superb book that provides policymakers from developing countries with what they have long wanted, namely, an authoritative yet eminently practical guide on how to choose the type of exchange rate regime would best suit their needs.

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New Research in Financial Markets. Edited by Biais (Bruno) and Pagano (Marco). (Oxford: Oxford University Press, 2001. Pp. xix+356. £40.00 hardback. ISBN 0 19 924321 2.)

In the past decade finance has made advances along many dimensions. This book contains a collection of timely articles which span the evolving fields of asset pricing, market microstructure, speculation, and corporate finance. The articles were selected by two leading researchers with the goal of highlighting the main contributions of European academics in these fields. Besides helping the reader identify and categorise important papers, the main 'value added' of this collection is the nice overview presented at the beginning of the book. This chapter starts by introducing the three main equivalent asset pricing formulas[1] and then links all articles and highlights their common features.

The first two articles are classic asset pricing articles: Dahlquist and Sonderlind (1999) conducts more modern performance evaluation using pricing kernels instead of relying on the traditional derivation of Jensen's alpha in a mean-variance framework. The paper by Dumas, Fleming and Whaley (1998) tests the consistency of the implied binomial trees method originally proposed in Rubinstein (1994).

The second group of papers falls into the category of market microstructure. One of the centrepieces of market microstructure is the analysis of the role of asymmetric information among different market participants. The article by Rochet and Vila (1994) provides a robustness check for Kyle's (1985) seminal paper on insider trading. The paper by Biais and Hillion (1995) shows that the introduction of non-redundant options in a setting with asymmetric information generally enhances the hedging opportunities for uninformed traders and reduces the problem of market breakdowns. Vives (1995) uses a dynamic setting to show that the speed at which the price converges to the true value depends on the market structure. In addition to these market microstructure papers, the editors could also have added the paper by Biais, Martimort and Rochet (2000).

The next four papers are grouped under the heading 'Speculation'. The first paper in this group shows that if informed traders' horizons are limited, they only

[1] Unfortunately, a typo slipped into equation 4: p_t should be multiplied rather than divided by $(1 + r_t)$.

trade on short-run information and consequently long-run information is not reflected in the price. In my view, one of the major advances in finance in the 1990s was the literature on the limits to arbitrage in particular, and behavioural finance in general. Hence, one could have alternatively classified the article on arbitrage chains as an important paper on limits to arbitrage, and the article by Balduzzi *et al.* (1995) on the interaction between speculators and feedback traders as an early behavioural finance paper. Higher order beliefs and their linkage to speculation are the focus of the paper by Biais and Bossaerts (1998) and Morris and Shin (1998). The latter emphasises the coordination component which is necessary to break a currency peg. Unfortunately, the editors decided to print the original version of the article and did not incorporate corrections regarding theorem 2, which a critical reader should be aware of (see Heinemann (2000) for details).

The final two articles link asset pricing with corporate finance. Anderson and Sundaresan (1996) show in a continuous time framework how strategic debt default affects the value of corporate debt. Stulz and Wasserfallen (1995) analyse what securities a firm should issue if foreigners' demand for shares is different from domestic demand.

As the numerous references to papers not part of this volume indicate, it is difficult to get a comprehensive grasp of recent developments in the field of finance, if one restricts attention exclusively to papers written at European institutions. Finance is truly an international field and benefits tremendously from the fact that ideas float back and forth across the Atlantic. To compensate, the nice overview chapter gives a flavour of the broader literature and puts the European contributions in context. Overall, the book provides graduate students a nice starting point to get familiar with the important contributions in this literature and makes the material more approachable.

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Delivering on Debt Relief: From IMF Gold to a New Aid Architecture. By BIRDSALL (NANCY), WILLIAMSON (JOHN) and with Brian Deese. (Washington, DC: Institute for International Economics, 2002. Pp. 162. £21.50 paperback. ISBN 0 88132 331 4.)

Too often discussions on foreign aid to poor countries end with a call on wealthier countries to do more. This book is different. Not in the ultimate conclusion, but in the authors' effort in analysing the issue of debt relief to low-income countries in the broader perspective of a new aid architecture. Birdsall and Williamson offer a very valuable contribution by devising a feasible new aid architecture, assisted by their professional, not only academic, experience with international policy-making institutions.

In 1996, the IMF and the World Bank launched the HIPC (Heavily Indebted Poor Country) Initiative, which would be 'Enhanced' three years later. Unlike a simple debt-stock reduction, the Initiative keys the extent of debt-relief to the amount necessary to achieve 'debt sustainability' and includes, for the first time, the debt owed to multilateral financial institutions. The Initiative has been applied to low-income countries with a track record of sound macroeconomic policies. In its 'Enhanced' version – beyond providing faster and deeper debt-relief – it also emphasises the need for HIPCs to commit more resources to social expenditures, following savings in their debt-service. Differently from the traditional notion of conditionality, countries would formulate, through an extensive involvement of the civil society, a Poverty and Reduction Strategy Paper in which they lay down their own strategy to combat poverty and foster social and economic development.

Interestingly, the authors discuss quite thoroughly the main features of the Initiative. They find that it has met a long-standing demand from the international public opinion frustrated by the ineffectiveness of 'traditional' foreign aid and determined to obtain the cancellation of most of the debt owned by low-income countries. Beyond the additional resources channelled by official creditors through the Initiative, debt relief represents a more efficient outcome with respect to other traditional forms of aid. First, it dramatically increases ownership in the recipient countries since they would be free to decide on how to allocate the resulting savings in debt-service. Furthermore, debt relief entails a sensible reduction in transaction costs, given that several low-income country agencies have to devote an increasing share of their time in dealing with a variety of donors and their own requirements. Since the resources released through debt relief are fungible, it provides an effective alternative to the practice of project-based aid and, worst of all, to that of tied aid.

As the analysis goes on, the authors argue for a deepening and a broadening of the Initiative. On the former aspect, they claim that the relevant criterion used to gauge debt sustainability is not the most appropriate. Instead of the traditional export-to-debt ratio, they favour a new, more encompassing, measure of sustainability based on the debt-service-to-GDP ratio. By assuming a 2% threshold ratio, the authors find their proposal would entail, on average, a more generous treatment for the countries currently benefiting from the Initiative. Furthermore, they also call for extending the list of beneficiaries to selected low-income countries that at one time had been able to borrow from the financial markets. Their debt-relief framework is complemented by a contingent facility, whereby HIPCs would be provided additional debt relief if exogenous shocks hit their economies within ten years from their graduation from the Initiative. The purpose is to reassure investors that HIPCs will not be pushed back into unsustainable debt, should adverse circumstances materialise. The authors also attempt to find ways for backing their proposals financially, by calling for the mobilisation of IMF gold and increased bilateral contributions, also from the upper-middle-income countries.

There are some aspects, however, that the reader may find controversial. For instance, the authors argue that the Poverty Reduction and Growth Facility, used by the IMF to finance macroeconomic stabilisation, poverty reduction and growth policies in low-income countries, should be transferred to the World Bank on the grounds that poverty reduction is its own *raison d'être*. However, under their proposed framework, most of the new financing for providing deeper and broader debt relief would come from the IMF, which would significantly increase its role as debt-relief provider to low-income countries, thus implying a marked shift in the mission attributed by its shareholders. Notably, this would happen at a time when increasing volatility of international capital flows, the pace at which the macroeconomic outlook of member-countries can deteriorate, and the delay and difficulties for the catalytic effects to materialise impose a further burden on the Fund's financial position. Another issue that may not go unnoticed is the idea of eliminating the PRSP from the HIPC process. As the authors note earlier in the book, the idea for linking the PRSP to the Initiative was for debt-ridden countries to demonstrate a firm commitment to reducing poverty by using resources that would otherwise have been spent for debt service.

This book strongly encourages the reader to reflect on how challenging it is to escape from the trap of unsustainable debt. It may also lead one to conclude that the current 'institutionalisation' of debt-relief, in today's debate on foreign aid, should not become a permanent feature of any architecture, least of all a new one.

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A Non-Random Walk Down Wall Street. By LO (ANDREW W.) and MACKINLAY (CRAIG A.). (Princeton, NJ: Princeton University Press, 1999. Pp. xxiii+424. £17.95 paperback, US $24.95 paperback. ISBN 0 691 09256 7.)

This volume collects together eleven papers of these authors, together with a general introduction. They are arranged into three broad areas with a further short introduction to each of these three parts. The overall introduction to the volume reviews the core ideas which motivate most of the collected papers: the Random Walk and the Efficient Markets hypothesises. In particular it is emphasised that 100% efficiency, with zero profit opportunities, is unrealistic just as in any other physical system. One can hope for increasing relative efficiency over time and as part of this it is inevitable, and healthy, that profits may accrue to financial innovation in the same way they reward R & D in other areas of economic life. For example, financial forecasting might be expected to improve in the same way as weather forecasting has improved, with the first to use new techniques making abnormal profits. This possibility of relative efficiency increasing also has the implication that applying current best practise to historic data may uncover profit

[1] The reviewer is also affiliated with the International Monetary Fund and the Bank of Italy. The opinions expressed are strictly personal and do not necessarily reflect the views of the IMF or the Bank of Italy.

opportunities in the same way one might be able to improve on historic weather forecasts using today's technology. The introduction is concluded with some examples of how efficiency might be increased in the future.

Bringing their papers together into one volume emphasises the coherence of their research agenda. It is not just that the papers address similar issues but it is the sense of development which is impressive. This is most evident in the sequence of papers relating to the Random Walk Hypothesis. The first paper in the volume presents evidence that stock prices do not follow random walks using tests based on variance estimators. They obtain new results for short horizon returns by developing more powerful techniques than the dominant methodology of the time, which was to test for forecastable price changes. Having obtained striking results, in one subsequent paper they rigorously investigate whether the statistical techniques they had used were robust and in two more papers what economic model might explain the results they had obtained. This seems a good example of progressive scientific enquiry.

The rejections in the 1988 paper were obtained using tests based on variance estimators. The basic idea is simple but proves powerful. The variance of the increments in a random walk is linear in the observation interval. Therefore, for example, the variance of price changes measured over a week should be five times the variance of daily price changes. If the one week variance is more (less) than five times the daily variance then there is positive (negative) autocorrelation. Variance ratios had been used before, but Lo and MacKinley developed the formal sampling theory of variance-ratio statistics. This underpinning and better understanding of variance-ratios led to more interest in, and wider application of, this powerful statistic.

Other papers had reported anomalies in long horizon returns. What was novel about their 1988 work was that it reported rejections of the Random Walk Hypothesis using weekly returns. This must have been the first paper to uncover the now widely reported and debated co-existence of momentum in short horizon returns (less than a year) with returns reversals at longer horizons. They conclude their 1988 paper with the observation that construction of a single stochastic process that fits this feature of the data, and specifying an economic model that might give rise to such a process, is a pressing problem. It remains so fifteen years later.

The basic questions which motivate Lo and MacKinley's research agenda are similar to those of many authors who publish regularly in the leading finance journals. What is distinctive about every paper in this volume is the care taken to make intuitive ideas precise in models where specific stochastic processes for the data are postulated. A good example of this is their 1990 paper on data snooping. Other authors had shown the practical relevance of this problem, but they examine the issue from first principles. This is not just intellectually satisfying but it leads to suggestions for improved empirical practise.

The final section collects their papers which investigate very high frequency intra day data. They argue that this work can help us better understand price formation. This may be true of technical determinants (for example size of order books) and this may in turn be important for understanding black Monday and the potential stabilising role of institutional changes like trading breaks, but there is little gain in economic understanding at this frequency. Investigating returns over fifteen minute intervals has few implications for trading opportunities for 'outside' investors and this work is probably of more interest to market makers and regulators than to most economists.

Although the papers are important, it is not clear what the market is for this collection. The papers have all been published in leading journals to which most academic readers will have easy electronic access and the introductions, whilst interesting, are too brief to justify purchase. A practitioner should read their excellent text (with Campbell) before tackling the papers here.

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The Distributional Aspects of Social Security and Social Security Reform. Edited by FELDSTEIN (MARTIN) and LIEBMAN (JEFFREY B.). (Chicago and London: University of Chicago Press, 2002. Pp. x+469. £40.00 hardback, US $57.00 hardback. ISBN 0 226 24106 8.)

Social Security Pension Reform in Europe. Edited by FELDSTEIN (MARTIN) and SIEBERT (HORST). (Chicago and London: University of Chicago Press, 2002. Pp. xiii+500. £49.00 hardback, US $70.00 hardback. ISBN 0 226 24108 4.)

These two pension-economics collections were both edited by Martin Feldstein, together with Jeffrey Liebman in the first volume and Horst Siebert in the second.

The first volume, based on papers presented at a conference in Woodstock in 1999, is a more specialist book, focusing as it does solely on the US and on the distributional consequences of various options for social security reform (These include reducing benefits, raising revenue, investing the trust fund of the social security administration in private financial assets, and supplementing pay-as-you-go with individual funding). To gain a full picture of US pension-reform issues, it would need to be read alongside earlier volumes in the same series such as; 'Privatising social security' (ed. Martin Feldstein 1998); 'Administrative cost aspects of social security reform' (ed. John Shoven, 2000); and 'Risk aspects of investment based social security reform' (eds. John Campbell and Martin Feldstein 2000).

In common with other OECD countries, the US population is ageing, which will raise the cost of financing current social security benefits substantially. The editors argue that the studies in the current volume collectively support the case for supplementing a reduced pay-as-you-go system with a system of funding based on individual accounts. They argue that this would be the best means not only of reducing the burden of ageing on taxpayers and increasing average retirement incomes, but also of reducing old-age poverty.

Four studies deal with redistribution in the context of the current social security system, highlighting that the degree of redistribution that it provides may be mitigated by factors such as differential mortality of income groups and lack of take-up of means tested supplementary benefits. Furthermore, by reducing saving, social security may decrease wealth, especially for those of average income and below – although it may also reduce inequalitv of wealth due to variations in lifetime income. Two studies look at reforms in the context of social security. The current system is shown to be only marginally progressive, while likely reforms will cut the low rate of return in the system even further.

The four final studies address issues arising specifically from a partial shift to investment-based retirement accounts. It is suggested that not only would such a system cost less than maintaining pay-as-you-go, but it would also give higher benefits to most individuals, with a lower proportion of the elderly left in poverty. This is contended to be the case even if rates of return on financial assets fall short of historical levels. A further redistributive aspect could be introduced such that all income groups' benefits rise by the same percentage. General equilibrium effects on wages and interest rates would also benefit the poor via higher returns on investment-based accounts and a higher capital stock per worker. Finally, allowing bequests or joint life annuities would reduce the degree of demographic redistribution that would otherwise occur with single life annuities.

The overall issues surrounding this area are well rehearsed and also covered in extensive discussions and comments on the papers. One key question is whether returns over the last 50 years are representative of those achievable in the future, either in terms of return or risk. Lower returns might be a particular feature of coming decades if the scope of funding is much wider than in the past. Other issues are administration costs (that may reduce realised returns substantially) and the difficulties of transition. The difficulties of private annuity markets should also not be underplayed, entailing not only adverse selection to individuals but also major financial risks to insurance companies that may underestimate growth in longevity. One intriguing aspect is the concept of redistributive funding, which appears to achieve higher retirement incomes for the poor by mandating regressive fixed rate contributions.

The second volume, based on papers from a conference in Berlin in 2000, focuses on EU pension issues and is perhaps more general and wide-ranging in scope. It is highlighted that EU countries face more acute ageing than the United States, while social security is more generous and opposition to funding quite entrenched in a number of countries. There remain exceptions such as the United Kingdom, Netherlands, Switzerland and Denmark, which due to early reform have less of a problem with future social security liabilities.

The book has general papers on social aspects of reform, economic aspects of pension reform and on labour market aspects (mobility and redistribution). There are also country papers dealing with demographic and economic background, recent reforms and the political and conceptual issues in the reforms. These cover France, Germany, Sweden, Italy, Finland, the Netherlands, the United Kingdom, Hungary and Romania, and are complemented by an international overview. The papers emphasise the diversity of approaches to retirement income provision and its reform across Europe, with countries often having important lessons to teach one another.

Overall messages of the collection are emphasised in the two introductory chapters by Feldstein and Siebert. Taking a US perspective, Feldstein *inter alia* highlights the difficulties diverse pension systems create for an integrated EU labour market, and the net benefits of notional defined contribution funds.

Feldstein also advocates the benefits of a scheme similar to that outlined above for the United States in an EU context. Meanwhile Siebert contends that reforms of PAYG other than reducing benefits offer 'illusory benefits', given e.g. the distortionary effects of a basic rate social security pension, or of financing social security by general taxes. He concedes that reducing incentives to retire early would mitigate the social security crisis. But the combination of lower social security benefits with a funded pillar, and maximal actuarial fairness is seen as the best approach. He notes that the interaction of pension reform with the minimum income mandated by social security is a key issue in Europe, given the latter is relatively high. This could in turn crowd out the scope for a funded element.

Comparing the two books, although both involve high levels of scholarship and analysis by leading experts in the field, it is clear that the second will have a more general readership among policy makers, opinion formers and officials as well as researchers interested in EU pension reform. The first will retain an interested readership among pension scholars, notably those wishing to apply advanced methodologies developed in the United States in other markets, as well as those individuals directly involved in the ongoing US pension debate.

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Reorienting Economics. By Lawson (Tony). (London and New York: Routledge, 2002. Pp. xxvi+383. £21.99 paperback. ISBN 0 415 25336 5.)

In *Reorienting Economics* Tony Lawson argues that the 'discipline of modern economics ... can profit from a more explicit, systematic and sustained concern with *ontology* than has been its custom' (p. xv). Following up his widely acclaimed book *Economics and Reality,* Lawson reiterates that modern economics ignores the nature of social reality, which undermines the robustness and relevance of much economic analysis. He also indicates how a successful reorientation of the discipline could be achieved.

That modern economics is so problematic may seem to fly in the face of what many regard to be a secure paradigm of thought. Yet, Lawson argues that symptoms of the problems are manifest in declining enrolments to study economics at universities, that secondary school provision is diminishing and there has been public debate airing concerns about the relevance of much of economic analysis, for example, instigated by students in France. Moreover, even iconic spokespersons of the discipline have and do still express their concerns about the lack of 'practical relevance' of economics.

The book is organised into four sections. Part I, comprising 3 chapters represents Lawson's diagnosis of the problems with economics. Chapter 1 argues that academic economics is dominated by a tradition emphasising *a priori* mathematical-deductivist modelling. This presupposes a 'closed-system' ontological position in which regularities between events (or their stochastic, i.e. econometric, counterpart) of the form 'whenever event '*x*' then event '*y*'' are held to persist. These are treated as laws such that when combined with initial conditions allow the deductive generalisation of consequences, i.e. predictions. The emphasised structure of explanation is one of the 'causal sequence' of events. Yet Lawson argues that the predictive and explanatory power of economics is weak because the assumed 'closed-system' does not accord with the 'open-system' of social reality. This effectively precludes economics from realising its potential.

Chapters 2 and 3 begin Lawson's contribution towards a constructive change in the orientation of economics. They discuss aspects of an ontological position, systematised as critical realism, in which social rules, positions and their reproduction and transformation by reflective conscious agents are located. The upshot is that real causes of events cannot simply be inferred from knowledge of patterns in events as implied in mathematical and econometric models.

Part 2 explores the alternative, and comprises three chapters indicating how the economist can reorient research efforts to capture the complexity of a structured open system. Chapter 4 argues that an appropriate logic of inference is retroduction rather than the deductive reasoning of modern economics and/or its inductive counterpart in econometrics. Retroduction is essential to causal explanation, allowing the researcher to move beyond the surface manifestation of events to their causes. While a complex task, Lawson argues that 'contrast explanation', which draws upon 'surprising' breakdowns in partial patterns of events, or *demi-regularities,* provide a promising point of departure for this endeavour, providing a window, as it were, through which particular causes are exposed by comparison of analogous contexts. The implication is that the causal structures and mechanisms underpinning events and their respective changes are key subjects of analysis.

To this end, chapter 5 discusses the usefulness of borrowing biological metaphors in producing social explanation. Lawson demonstrates that heterodox appeal to evolutionary biological metaphors as opposed to mathematical systems has promise, but should be tempered by equal concern with mathematics over their ontological relevance to social systems. Chapter 6, moreover, reveals the consistency of Lawson's critical-realist ontological position with accepted definitions of economics, whether or not one draws upon Mill, Marshall or Robbins.

Part 3 then presents three chapters exploring the explanatory possibilities of [the heterodox thought of] Post Keynesian, Institutional and Feminist Economics. Lawson concludes that there are broad, often implicit, similarities between the ontological conception he defends and the (often only implicit) ontological presuppositions of such heterodox approaches. Lawson concludes that the heterodox traditions offer possibilities for the refinement of an alternative approach to economics. This said, Lawson cautions that boundaries between the heterodox alternatives would come into question. An implication is that a pluralistic approach to economics, in which social theory is firmly rooted, is required.

The last chapter and section of the book charts aspects of the historical development of mathematics in economics and argues that its centrality became possible with the development of mathematics as a discipline *per se*. This is unlike when mathematics functioned as the 'abstract language of nature', for example, in physics. As well as revealing the lack of necessity of mathematical analysis in economics thus, this chapter shows that it became linked with economics precisely at a time when mathematics was developing in the context of a conceptual divorce from considerations of reality. As such it offers much in understanding the development of, and problems with, modern economics.

Reorienting Economics is a well written, closely argued and ambitious book. It is fundamentally challenging to economists of all persuasions and suggestive of how economic analysis may well have to change if it is to retain its relevance in the future. It should be emphasised in closing, that Lawson is not at all critical of mathematics *per se*. Rather Lawson is critical of its use in an unthinking *a priori* manner. This assessment is not compromised by Lawson's clear sceptism concerning the likely widespread relevance of formalistic methods to an open system, a view, albeit not expressed as such, that wider society and reflective economists seem to increasingly share. Lawson, though, consistently advances a pluralist position. Equally, importantly, however, Lawson also demonstrates that there are alternatives.

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The Economics of Demand-led Growth: Challenging the Supply-side Vision of the Long Run. Edited by SETTERFIELD (MARK). (Aldershot and Lym, NH: Edward Elgar, 2002. Pp. xii+306. £69.95 hardback. ISBN 1 84064 177 0.)

This volume is a collection of essays developing growth theory from the demand-side instead of the conventional supply-determined growth paradigm. Besides general discussions of the role of demand in the long run, the contributions fall in the Kaldorian and Kaleckian traditions, with a section on the relationship between structural change and demand-led growth. The supply-side neo-classical propositions that demand has only a transitory impact on the utilisation of resources and that the development of these resources (and hence potential output) over time is independent of demand are mere abstractions that have been well challenged by Setterfield in the introduction. If the goal of growth theory is to show the mechanism of growth taking note of the demand side, then the neo-classical growth theory (so-called endogenous growth with technological progress augmented by human capital) falls short. Two questions follow from this: (i) without effective demand how does one talk of actual growth, since the upper limit to potential growth can keep changing in line with demand growth; (ii) is it sensible to talk about 'endogenous' growth while leaving demand side out of the picture? In other words, the expansion of productive capacity cannot take place without a prior expectation of an appropriate demand growth.

Part 1 of the book focuses on the fundamental issues in the theory of demand-led growth, with Palley providing a framework for the relation between growth theory and macroeconomics by distinguishing between potential and actual output. The labour augmenting technical progress in Romer-Lucas' new endogenous growth theory introduces a range of mechanisms, especially knowledge and human capital formation, while the British variant (Kaldor-Mirrlees-Scott) of endogenous growth emphasises investment in physical capital, which is influenced by a range of policies. Demand conditions however ultimately determine the level of investment spending. This, in turn, affects the rate of technical progress and thereby output growth, which then feeds back on demand growth and so on. In the short run, there will be disequilibrium depending on the extent of excess capacity, but in the long run, both demand and supply would grow together with demand being the leading factor in deciding potential output. Besides, technological change is also demand-determined – which was first recognised by Kaldor in 1957 in his technological progress function – making the natural rate of growth endogenous.

Halevi and Taouil make a crucial distinction between output being determined by productive capacity and investment spending, linking the level of investment tied to uncertain expectations, while Atesoglu finds one cointegrated equation explaining output, being dependent on investment, government spending, exports and the money supply. The empirical exercise does not seem very satisfactory in its treatment of investment as an exogenous factor, given the previous analysis that investment spending is influenced via different policies and uncertain expectations. In reality, GDP growth is largely demand-constrained and it is effective demand that helps determine the rate of capacity utilisation (or output gap). For example, the output collapse during the Asian financial crisis of 1997–8 was mostly due to the demand shock resulting from the loss of consumer and business confidence. Consequently imposing tight fiscal policies and raising interest rates at this time were inappropriate.

Part 2 of the book discusses Kaldorian models of demand-led growth. Setterfield and Cornwall identify three macroeconomic regimes, namely demand, productivity, and institutional regimes within which different growth episodes, i.e. the golden age (1945–73), the age of decline (post-1973), and a neo-liberal growth episode in the 1990s, are analysed. They conclude that institutional differences explain the generalised slowdown in output and productivity growth since 1973. McCombie and Roberts attempt to assess the role of the balance of payments in economic growth, in contrast to neo-classical growth theory where there is virtually no mention of international trade or the growth of exports, except discussions on technological externalities or spillovers. They suggest that 'explanations of long run growth that ignore the role of demand and economic openness are likely to be incomplete'. Palley in Chapter 7 also presents a short treatment of how supply growth adjusts to the growth of demand (emanating from the mechanism of import demand) to restore current account balance.

The East Asian miracle from 1965–96, which was based on an export-led mechanism, does help explain the importance of exports in the growth process, but we cannot expect the world as a whole to follow export-led growth as a key development strategy. It can be important only in the context of small open economies as they lack enough local demand. Domestic demand growth should therefore be the core focus of a growth paradigm, since export-dependent economies can be more vulnerable to external shocks. At the same time, with rapid domestic expansion the challenge would be to ensure a steady growth in exports in line with import growth.

Part 3 looks at Kaleckian models of demand-led growth whether growth should be wage or profit-led. Although there is no simple answer, Blecker provides conditions under which demand-driven economies are more likely to be wage-led or profit-led within a neo-Kaleckian framework. Mott points out two key longer-run factors – mark-up and productive capacity – that affect short-run conditions influencing income distribution between wages and profits, and thereby output, employment and the efficacy of policy actions, while Lavoie and Cassetti discuss the interaction between the conflict theory of inflation and the Kaleckian growth model.

A crucial feature of the Kaleckian model is its investment function, in which the desired rate of capital accumulation is a linear function of the expected rate of profit and of capacity utilisation. Setterfield in part 4 uses traverse analysis to reinterpret and extend Kaldor's cumulative growth schema, while the final section discusses the ways in which the demand growth is endogenous where supply and demand do not seek an equilibrium, but rather induce feedback effects on each other, resulting in perpetual change.

The bottom line is that the current neglect of the role of demand in analyses of long-run growth is unwarranted. As the 'Washington Consensus' ideology has failed in guiding development policy and boosting growth, there is a need for a new model of development along the lines argued by different authors in this book. Although the focus of this volume is more on capitalistic economic systems, the idea of demand-led growth holds true even in emerging-market and developing economies.

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Schooling and the Quality of Human Capital. By WOßMANN (LUDGER) (Berlin, Heidelberg and New York: Springer, 2002. Pp. xvii+228. Eur 59.95 hardback. ISBN 3 540 43882 3.)

This book is concerned with an extremely important area of research, namely the economics of education. The book is a curious mix of topics. It addresses several distinct but related questions namely: what role does education play in economic growth, what explains school productivity across countries and what determines student performance across countries? Sandwiched in the middle of these empirical chapters is a theoretical model of the production of schooling quality. In essence the book's contribution is as an applied econometric study of the international country differences in schooling and human capital. Such studies are important since we know relatively little about why countries differ in the relative efficiency of their educational systems and why they produce young people of markedly different educational quality. Each country would like to know how well its educational system is doing and how it could learn from other countries. Unfortunately the author does not expand on this rationale or motivation for his book.

Chapter 2 examines the role of education in economic growth by reviewing the different measures of human capital which have been used in this literature. The author's main argument is that studies which use international data from different countries should be based on measures of the quality of human capital. After reviewing various alternative variables for doing this (including adult literacy rates, years of schooling, rates of return to education and measures of educational inputs) the author ends up coming down in favour of a combination of 'quality and quantity measures of education with world-average rates of return to education at the different education levels in a Mincer-type specification of the human capital function' (page 29). In this case, the education quality index is a normalised version of that available from a paper by Hanushek and Kimko (2000). The author suggests that this improvement in the measurement of human capital quality can account for about half of the worldwide dispersion of levels of economic development.

Clearly the suggestion that a careful use of measured human capital quality differences across countries is sensible. What is much more debatable is whether we can rely only on one particular version of a schooling quality index to be an adequate measure of this diversity? In addition, the use of simple cross country comparisons begs the question of exactly how comparable the data really is across countries. I would suggest that this study is only a start in the process of developing much better panel data relating to inter-country educational differences across time.

Chapter 3 examines the link between schooling expenditure at the national level and school performance as measured by TIMSS test data. This evidence suggests that there is little evidence of a positive relationship between these two variables. The argument is related to the author's joint paper in this JOURNAL (in 2001 with E Gundlach and J Gmelin) on the subject of the decline of schooling productivity. The latter is much better written than this chapter and I would advise the interested reader to start with the ECONOMIC JOURNAL paper.

Chapter 4 suggests that all the fundamental relationships in education can be seen in terms of principal-agent relationships. This is quite a simplistic view of the education process. Clearly there are important principal-agent relationships at the heart of the education process. For example, the way in which teachers relate to their head teachers can be seen in this way. Clearly, since teacher effort is difficult to observe then it will be problematic to write a contract which provides consistent incentives to teachers to always work in a way which provides the best learning environment for pupils. A major problem in this area which is well documented by Avanish Dixit in various papers is that agents in education may have multiple goals with multiple principals, i.e. head teacher, parents, governors, educational officials etc and that these principals may well have different goals for teachers. It can be shown that incentive mechanisms in this situation can be very weak for teachers. Woβmann mentions these problems but does not seem to be aware of this literature.

The rest of Chapter 4 introduces a simple model of what the author calls 'educational production in schools'. In this model students maximise benefits subject to a cost of effort constraint. Simultaneously the government seeks to maximise its benefits subject to an overall expenditure constraint. The model is based heavily on an appendix of an unpublished paper by John Bishop. The chapter does not demonstrate the existence of an 'equilibrium'. Instead, the chapter focuses on questions which are not explicitly endogenous in the model – for example, the role of teacher influence (pp. 146–8) and fairly arbitrarily attributes signs to partial derivates which do not come from the model.

In Chapter 5 the author is on firmer ground in the empirical estimation of individual student performance using the TIMSS data. The author concludes that the variance on individual achievement tests is not caused by differences in schooling resources but mainly by differences in educational institutions. These important conclusions need careful assessment – because – taken at face value they are very disturbing for the economist's intuition that more input of resources should facilitate the production of more output. I suspect that there is much yet to explore in the use of international educational data including a more rigorous use of the multiple levels of information in the data from the individual, the family, and the school. This multilevel feature of the data is largely ignored in this book.

I have other more minor gripes about the book which come from the author's idiosyncratic use of English which often involve reading single sentences which are 7 lines long. Phrases like 'it can be mused that' (page 48), 'spring from our days' and the frequent use of the word 'argumentation' grate on the reader. Additional annoyance is provided by the plethora of notation which changes in each chapter, for example – in chapter 2, P is a survival probability, in chapter 3, P is the price of output and in chapter 4, P is the political priority for schooling quality. The book also suffers from being lifted straight from a PhD thesis with little or no editing or proof reading. In this respect the exposition is often pedestrian and not 'user friendly'.

On the more positive side this book would be a very useful starting point for someone wishing to move on from the overused TIMSS data to using the new OECD PISA data, which is now available to address many of the questions posed in this book. On many questions the book is a useful summary of the literature particularly on the macroeconomics of educational economics.

In summary, the book is a valuable addition to the literature on the inter-country comparison of educational performance. The book is a research monograph and is written in a style which will make it mainly useful to researchers in the area. This is not a text for policy makers, students, or those looking for an introduction to the economics of education.

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Inflation in a Monetary Union. By CARLBERG (MICHAEL). (Berlin, Heidelberg and New York: Springer, 2002. Pp. xv+305. £52.50 hardback, EUR 74,95 hardback. ISBN 3 540 43359 7.)

This book presents a systematic, and schematic, study of the determinants of inflation in a monetary union. The results are derived from a dynamic, steady state growth version of a full employment, neoclassical synthesis type of model. The reader is carefully conducted through a step-wise analysis: first, a closed economy is considered; second, a two-country model, with flexible exchange rates and imperfect substitutability between the goods produced in the two regions; finally, a monetary union formed by two countries, with flexible exchange rates towards a third one, representing the rest of the world. Numerical examples offer further guidance in understanding the results. These are then contrasted with those derived in a one-good model of the world economy (with the demand side condensed to a quantity theory equation). Finally, the last part of the book offers some microeconomic foundations, based upon the household utility maximisation subject to the budget constraint.

The main results concern inflation, depreciation, wage growth and interest rates; the case of the central bank targeting inflation is also considered, with the consequent focus on the required money growth rate. For the sake of brevity, I will concentrate on the results concerning the open economy framework, starting with the case of the world consisting of two countries, with flexible exchange rates. In either of them, producer inflation is given by the difference between the money and income growth rates. Nominal depreciation results from the difference between the money growth rates of the two countries: the author stresses the contrast with the 'widely held view' (page 48) that the nominal depreciation rate depends on producer inflation. One should note, however, that this result is indeed correct in some cases, for instance in the absence of output growth or in the one-good set-up used by the author in Part IV of the book. The same holds for the nominal interest rates differential (while the real one is given by the difference in the countries' output growth rates). As for consumer inflation, it depends positively on the country's money growth rate and negatively on those of home and foreign output; note that in the one-good model there is no difference between producer and consumer inflation, that, therefore, is independent of the foreign output growth rate. Wage growth may be driven by productivity growth or labour growth; in the first case, nominal wages growth is determined by money growth; producer real wages growth by productivity growth; and consumer real wages growth by productivity growth in both countries; as for the case of labour growth, nominal wages grow according to the difference between the money and the labour force growth rates; producer real wages do not change; consumer real wage growth is determined by the differential between the foreign and home labour force growth rates.

The author then proceeds to analyse the case of an inflation target, namely of the central bank targeting consumer inflation. As a result, the money growth rate becomes endogenous and is determined by the inflation target and by home and foreign output growth (the latter element falling out in the one-good specification). As for the nominal depreciation rate, the author stresses how it is no longer a function of the money growth differential, but of the differences in the countries' inflation targets and in the output growth rates. This statement (page 75) should not mislead the reader: the depreciation rate is still equal to the money growth rates differential; yet, money growth is now itself a function of the inflation target and home and foreign output growth rates. The same comment applies to the determination of the interest rate differential (page 76) and to wage growth (page 84).

All these results hold in the monetary union case as for the relationship between the union and the rest of the world. As for the two union members, the differences derive from the fact that they share a common money. Thus, the money growth rate being the same for both countries, the sum of the output growth rate and producer inflation rate must also be equal (in the one-good set-up, the inflation rate is the same in both union members); also nominal interest rates are equal and so is the growth rate of nominal wages induced by productivity growth; note also that a higher output growth rate in a country implies that its consumer inflation rate exceeds the producer one.

In contrast with other works by the same author, the reader should not look for confrontation with the recent developments in open economy macroeconomics and in the monetary unification literature, or for an analysis of the effects of government intervention on inflation. Also, the discussion of the results is rather sketchy. Yet, the rigour of the analysis bears interesting results, under both the theory and policy viewpoints.

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Sir Hans Singer: The Life and Work of a Development Economist. By SHAW (JOHN D.) and Foreword By RICHARD JOLLY. (Basingstoke and London: Palgrave, 2002. Pp. xxiv+349. £62.50 hardback. ISBN 0 333 71130 0).

This book traces Hans Singer's progress from his student days at Bonn University shortly before the Nazis came to power, through his move to Britain as a refugee to work under the mentorship of Keynes at Kings College on a Cambridge scholarship, and then to his subsequent career with the United Nations and his post-retirement career at the Institute of Development Studies at Sussex. Singer has been in the forefront of academic and policy thinking on developing countries for more than fifty years, and the book sets his work in the context of evolving views on development; even people without an interest in Singer's own career could read this book profitably.

To many readers familiar with Singer as a development specialist, it may come as a surprise to learn that his early academic studies were in urban land values, the topic of his PhD, and that his main subsequent interests were in macroeconomics and the unemployment problems of Britain. During the Second World War, his series of articles written for this JOURNAL on the German war economy resulted in Britain copying the German system of points rationing for basic consumer goods. Shaw argues too that Singer's references in those articles to the Nazis' proposed 'new order' for Europe was a factor leading Keynes to formulate proposals for a new and alternative world economic system, discussed later at the Bretton Woods conference of 1944. Singer's move into the field of development economics, apparently reluctantly we are told, came about fortuitously when he was seconded from Glasgow University in 1947 to the Department of Economic Affairs at the newly formed United Nations. His brief experience in the British Ministry of Town and Country (that is, countryside) Planning was taken by his American boss to mean he had experience of national ('country') planning, and thus would be a suitable person to work on developing countries!

Singer is still best known for his classic statements on the international (net barter) terms of trade between primary commodities and manufactures, whose long run deterioration has been tested and reaffirmed by successive generations of econometricians. Subsequently, he was crucially involved in the ILO's world employment programme in the 1970s, particularly its influential mission to Kenya, and with the later formulation of the 'basic needs' approach.

Deeply influenced by his association with Schumpeter at Bonn University into an interest in processes of change, and by Keynes' ideas that markets sometimes can work badly, Singer's approach to development has been much concerned with structural impediments to growth and change. What is not made clear in Shaw's book is that the barriers to development have been much more severe in some countries than others, and he does not ask if we can find any clues in Singer's writings as to why this should be so. Developing countries' economic difficulties in the 1980s, the 'lost decade' for development, are conventionally attributed in the book to the aftermath of the 1970s oil crises and the restrictionary 'monetarist' policies in the US and other developed countries in the 1980s. The burden of external debt accumulated as a result of these events left African countries in particular dependent on the multilateral agencies for external funds, and thus those countries were forced into a decade of largely counterproductive 'structural adjustment'. The issue is not properly faced that some large developing countries have developed rapidly during and since the 1980s, and have achieved large reductions in the incidence of poverty - China in the 1980s, or Vietnam in the 1990s for example – except by a throwaway comment that such experience might not be widespread or sustainable (page 69). Even more frustrating is that the experience of Korea and Taiwan is dismissed in a line (also page 69), with the implication that their success was the result of foreign aid – an odd assertion, given Singer's own stress on the importance for development of factors other than investible funds. Singer's work for some Korean agencies is included in a list in chapter 27, and it would have been interesting to see whether there were clues there to Singer's thinking. This tendency to treat developing countries as an undifferentiated mass is a weakness in an otherwise well researched and illuminating book.

Now that the multilateral agencies' 'Washington consensus' policies of market fundamentalism have been shown wanting, Singer's concerns with welfare and employment can be seen to have foreshadowed the new focus among international donors on poverty alleviation. This book is a fitting tribute to one of the most influential development economists of the post-war period, and one of the most generous to those who have come in contact with him.

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Consensus, Cooperation and Conflict: The Policy Making Process in Denmark. By JORGENSEN (HENNING). (Aldershot and Lyme, NH: Edward Elgar, 2002. Pp. x+296. £59.95 hardback. ISBN 1 84064 091 X.)

This book deals with the important question of whether the Danish experience of high employment and low inflation during the 1990s could enhance our understanding of how public policies help or impede economic success. The research question posed by the author is whether Denmark has become a model society that is capable of conducting Keynesian economic policy while keeping inflation low, due to a special institutional set-up.

The author chooses to rely on a historical institutional framework, which is presented in chapter 1. In this chapter, the author argues that rational choice institutionalism is unhelpful to explain the structural factors determining outcomes (page 20). This claim seems unwarranted in light of the work conducted by, for example, Barry Wiengast. In chapter 2, the author gives a short description of Danish history.

In chapters 3 and 4, the author discusses the politics of organising the administration and the role of the Danish municipalities. Concerning the politics of organising the administration, the author concludes that the Danish representatives have shown little interest in how different policy areas are organised. This is a surprising finding, which unfortunately the author does not explain. How come power-seeking politicians do not do more to organise the implementing agencies in a way that is congruent to their policy beliefs?

The book further provides an overview of 6 policy areas (General economic policies chapter 5, Social policies chapter 6, Health care policies chapter 7, Labour market policies chapter 8, Educational policies chapter 9, and in chapter 10 Agricultural policy). Building his analysis on historical institutionalism, the author concludes that there are pronounced differences between the policy style in the different sectors – differences that according to the author are due to their different paths of institutionalisation. For instance the author concludes, that there has been a pronounced stability in the Danish agricultural policy (page 228), whereas stability is less pronounced in, for example, labour market politics. In policy areas where stability is less pronounced the author seems unwilling to talk of change. An example of this is in the area of labour market politics, where the author finds several shifts in orientation, but concludes that these shifts do not qualify as path deviant (page 187).

Some questions remain unanswered – questions that seem to be of general concern and relevance for most studies using historical institutionalism and path dependency concepts with an emphasis on discursive practices.

The first question is what criteria are used to determine when a change is to qualify as a path deviant? Illustrative of this is chapter 3 on the Danish municipalities. Here the introduction of NPM (New Public Management) is characterised on the one hand as modernisation policy (page 63) and on the other hand as a continuation of a particular Danish institutional context (page 63). This points to the general question of when a development is guided by path dependency. And further it points to the question of which forces are capable of generating developments which are path deviant.

Second, the author is unwilling to pinpoint which actors are most important in shaping the policy areas. Although the author states in chapter 3 that a new discourse of NPM was given (page 64), he does not indicate by whom these statements were made. This is important because it would have enabled the author to be more specific about under which circumstances change in discourse is possible and by whom it is generated. The change in discourse must be – somehow – related to some actors who have the symbolic or material resources to make an impact. But the link between actors and their discursive strategy seems to be underdetermined in this book. The claim made by the author that the process of policy determination is complex, is unsatisfactory, especially if the goal is to provide information on how the Danish economy was guided to its success.

Finally, it is unclear to what extent the particular Danish institutional context has anything to do with the economic success Denmark has experienced. The author does not discuss the extent to which the development is a consequence of luck or of a deliberate political strategy aimed at this outcome. In the case of the latter, the book should have emphasised which actors would, under which circumstances, have been able to implement policies that could lead to a situation of high employment and low inflation.

All in all, this book provides a thorough description of a variety of Danish policy areas. But the book is unfortunately silent on how this context has helped bring about the economic success of the 1990s.

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Markets for Schooling: An Economic Analysis. By ADNETT (NICK) and DAVIES (PETER). (London and New York: Routledge, 2002. Pp. xii+251. ISBN 0 415 25333 8.)

This book provides a thorough survey of the market for schooling. The book's main contribution is to survey a complete and disparate literature on this very important topic. It does so in a very readable style which does not use formal mathematical notation or complex theoretical arguments. This is some achievement, since many of the papers discussed are themselves quite technical articles. This style has the virtue that the book should be accessible to the intelligent lay person and most importantly, to the policy maker.

Although the book draws on international evidence and papers published in many countries the central context of the book is the school policy and quasi-market debate in the UK. The central questions tackled in this book are:

What is the role of the market as a resource allocation device in education?

What has happened as a result of the market reforms in the provision of education?

Does the state provide enough choice in its provision of public education and what is the scope for private provision?

Can parents exercise effective choice for the education of their children within a state system of education?

Does the exercising of choice in education inevitably lead to streaming and differential treatment of ability groups and could there be resulting important consequences for inequality?

How well do quasi markets work within the state system of education?

How well does market led reform provide incentives to individual agents in the education system?

What is the rationale for, and what have been the consequences of, greater devolution of management control to schools?

What are the implications of this changing management for school governance?

How well has the publication of school league tables worked as an information device to facilitate the working of the quasi market in school places?

What are the problems of performance related pay for teachers and are these compatible with the professionalisation of teaching?

This is an impressive array of issues which together form the heart of the educational provision debate in the UK (and many other countries too). In each case the authors clearly present the arguments on each side of the debate from an impressive command of the literature.

Finally the book bravely tackles three policy questions: Should resources be allocated away from unsuccessful schools? Does the increased use of incentives have to jeopardise co-operation? Is increased polarisation inevitable? The authors cogently present the arguments and understandably, for economists, suggest that the market reforms and provision of incentives can be made to work.

I have very few criticisms of the book – one area of concern is that it is not quite up to date with the literature. However, this is a harsh criticism as writing this book must have been very much like trying to hit a moving target. One problem the book has is that this is an interdisciplinary area of research which is moving very fast and as such the authors have lost the opportunity to talk about some of the important contributions which are being made currently in their area. Several examples will suffice. There is an excellent new volume edited by Caroline Hoxby on education choice which is being published this year by the NBER. This book overviews the whole debate in the United States about school choice and charter schools. It would have been good to have these important contributions summarised in this volume. A second example is from the important empirical work being done by Steve Gibbons and Steve Machin at the London School of Economics which shows how the market for places in UK schools operates through the clearing of local house prices. A third example is the important recent book by Harry Brighouse on the philosophy of educational choice. Each of these examples were probably just too late to be included in this edition of the book. Maybe in the next one!

Another addition I would have liked to see to the book is an introduction to the origins of the ideas of educational choice. In my recent review of the Hoxby volume in this JOURNAL I explained some of the origins of the ideas of vouchers. This is an intriguing history and one which could have been profitably included in this volume.

In summary, the book is a very valuable addition to the literature in the economics of education. The book is written in a style which will make it easily accessible to readers from any discipline but it will mainly be useful to researchers in the area. This book is suitable for policy makers and students, or those looking for an introduction to the economics of education. At the same time it provides the research practitioner with a valuable source book which is a 'roadmap' through an extremely diverse literature. I would strongly recommend this book as required reading for any Minister of Education, in this or any successive government.

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Macroeconomic Policies of Developed Democracies. By FRANZESE Jr. (ROBERT J.). (Cambridge and New York: Cambridge University Press, 2002. Pp. xxiv+306. £55.00 hardback, US $75.00 hardback, £19.95 paperback, US $30.00 paperback. ISBN 0 521 80294 6, 0 521 00441 1.)

The role of political economy factors in the making of macroeconomic policies has received a great deal of attention over the past three decades. This book does an almost unique job of utilising the tools developed by this literature in an attempt to interpret the differences as well as the similarities in the macroeconomic policies of the developed democracies in the post war period. In doing that, the author also extends the existing knowledge on the interactions between the institutional structures and macroeconomic performance in general.

The material presented by this book is organised around five chapters, three of which are the main analysis chapters. The first part of the book- apart from the introductory chapter 1- is devoted to fiscal issues. The first fiscal issue that the author takes up is the political and the institutional determinants of social insurance. Appropriately, the next chapter turns to an in-depth analysis of the dynamics of public debt. Given that containing public debt has been among the greatest challenges faced by a large number of countries during this period and also given the divergent patterns experienced by different countries this issue deserves much attention. Finally, an account of the theoretical developments on monetary management of the economy is provided with a special emphasis on the interactions between central banking institutions and wage bargaining structure.

In general, the analysis chapters start with a road map outlining the research agenda relevant for that chapter and a thorough survey of the related literature is provided ahead of the relevant empirical analysis. All such three chapters, chapters 2, 3 and 4, present substantial evidence on the interactions between the political-economy and institutional factors and the relevant economic outcome. The extensive nature of these empirical parts make up one of the main contributions of the book. This is especially true for the analyses of the determinants of tax and transfers in chapter 2 and of public debt in chapter 3. It is clearly of great interest to attempt to provide some explanations for such divergent patterns of taxes and transfers and equally important if not more so, of public debt among developed countries. Chapters 2–3 go a long way towards this goal.

Chapter 4 turns the attention to the dynamics of monetary policy making. Differently from the analysis on fiscal policy, the role of political institutions is left aside in this part of the book and only the interactions between institutional structures of monetary policy-making and those of the wage bargaining are analysed. In one sense, this sets chapter 4 apart from the rest of the book. This is not uninteresting though, in fact given the vast differences in the labour market structures in Europe, for example, understanding these interactions is of paramount importance.

One obvious omission in the book is the absence of an explicit treatment of the links between fiscal and monetary policy-making. Although central bank independence index is among the explanatory variables for the evolution of public debt in chapter 3, I feel this issue should have been given more prominence. Different forms of policy-making structures such as fiscal dominance, fiscal leadership and monetary leadership potentially have important implications for the macroeconomic outcome. These issues are not analysed here. It is also surprising to see many more references to Bundesbank than to European Central Bank not only in explaining the past performance but also in conveying the general principles and implications of central bank independence.

The overall message of the book is the following. Institutional and political factors have been the main sources of differences as well as commonalities in the evolution of macroeconomic policies of the developed democracies in the post-war period. In short, conclusions derived here indicate that the very active research into the interactions between politics and macroeconomics over the past three decades has been much justified.

The contribution of the book mainly lies in two aspects of the analysis presented. As mentioned above, the first is the extensive nature of the new evidence presented. The second is the unifying framework it provides in analysing the making of macroeconomic policies in the developed world by bringing together a very large number of contributions. In terms of presentation, the book is very well-written with preludes and summaries in every chapter as well as an extensive set of conclusions provided in the last chapter. This should provide essential reading for anyone interested in uncovering the bases of actual policy decisions in countries where these are taken by democratically elected representatives.

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Understanding Economic Forecasts. Edited by Hendry (David F.) and Ericsson (Neil R.). (Cambridge, Mass and London: MIT Press, 2001. Pp. xvii+207. £17.95 hardback. ISBN 0 262 08304 3.)

In this book a group of academics, practitioners and a financial journalist present different perspectives on economic forecasting. The contributions add up to a comprehensive, yet fairly non-technical, survey over old and new issues in this field. Specialists from any of the three camps may argue that some of the examples are too simplistic to be of general interest, or that some of the theoretical contributions are presented in a way which practitioners may find too abstract and unrealistic to be valuable. I find that the book offers a reasonable compromise between analytical precision in forecasting theory and a non-technical description of the challenges facing practitioners. The 'Editors' introduction' outlines recent developments in the forecasting theory. First, forecasting models are considered as being misspecified relative to the process that have actually produced the data. Second, the economy is regarded as an evolving mechanism subject to unanticipated changes. In this perspective, forecast failure should be a relatively common experience, and practitioners should take this fact into account and make their forecast more robust to '[things] they don't know they don't know' (to borrow a frequently used paraphrase).

David F. Hendry examines various forecasting methods used by practitioners, drawing on his joint research with Michael P. Clements, and shows that certain types of unanticipated changes in the economy are among the primary causes of forecast failure. Neil R. Ericsson outlines aspects of forecast uncertainty, how it can be defined, what are the main sources behind it, and how it should be measured. Denise R. Osborn *et al.* examine special problems that arise when forecasting rare events like recessions. Several contributors stress the need to apply a system approach to modelling economic behaviour, for the purpose of generating economic forecasts and policy analysis. Some of the main arguments are discussed by Paul Turner, who considers the role of economics in models for generating economic forecasts, and Neil Hatch, who discusses modelling and forecasting practices in the Bank of England.

Ray Barrell stresses the role of judgement when forecasting the world economy subject to endemic structural change, and Terence Burns highlights the costs of forecast errors. One observation is that economic forecasting frequently takes place within a particular institutional setting, often aimed at making policy decisions. This point is elegantly reflected by Diane Coyle, who observes that there are different lessons to be learned for politicians, technocrats and journalists from the practice of economic forecasting. Hatch also touches upon how practitioners combine model forecasts with judgement, reflecting their need to take explicitly into account aspects of the economy that cannot be adequately captured by the model. He argues that, given the wide range of different issues that arise in the context of making (real time) monetary policy decisions, there is a role for a 'suite of models' to cover all the angles. This seems to be a sensible strategy, although selection criteria (like encompassing) can help discard models that are dominated by other models. Criteria for forecast evaluation are discussed in several chapters, focusing e.g. on different metrics for measuring forecast accuracy. One important result is that there generally is no unique measure for the accuracy of economic forecasts. Clive W. J. Granger argues that, since economic forecasts are made for particular purposes, their outcomes should be evaluated such that the costs of making forecasting errors are taken explicitly into account.

In their 'Epilogue' Hendry and Ericsson take a rather optimistic view on the future of economic forecasting. One of the important elements in this optimistic view is the incorporation of judgement in intercept corrections, which has been promoted from being counted among the major sins in the basement of forecasting practice to a highly recommended solution to problems that frequently arise in the context of forecasting real world phenomena. The economy may be subject to structural shifts that only show up in data with a lag and which manifests themselves as changes in e.g. the long run mean of labour shares, household savings ratios. Generations of practitioners will welcome this convergence in insights in the reality of economic forecasting.

Notwithstanding these views, it remains that intercept correction represents a failure of the model to capture some important aspect of the economic development. So in addition to acknowledging the need for practitioners to rapidly adapt to changing environments by incorporating extra-model information into intercept corrections, one should also stress the need for a closer scrutiny of the subject matter in order to turn events with forecast failure into progressively improved understanding of the economy, and consequently into developing better models.

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