BOOK REVIEWS

Beef in Japan: Politics, Production, Marketing and Trade. By J. W. Longworth. (University of Queensland Press, St. Lucia, 1983.) Pp. 327, ISBN 0 7022 1965 7.

Political and cultural considerations, not economics, control the beef market in Japan, and this has generated intense debate at the highest levels of government in Japan, the United States and Australia. The nature of this debate is not new but its intensity is a recent phenomenon: since the mid-1970s, beef trade issues have been a major item in bilateral trade talks but rarely at Prime Ministerial level. The beef market in Japan is shrouded in secrecy and mystery, and both foreigners and many Japanese find it difficult to understand why beef prices are so high and why beef creates so much controversy. This book provides a timely and comprehensive explanation of the facts and issues in question.

John Longworth is an authority on the Japanese beef industry and its relationship with the international beef trade. Long periods spent in Japan have provided him the opportunity to observe and analyse its complexities. This familiarity and subtlety of understanding can be clearly seen in the book. In Chapter 1, the reasons beef is a special, highly valued part of consumers' diets are considered. The economic parameters behind the low, but increasing level of consumption (5.1 kg per person in 1980) are seen in the context of changing life-styles and tastes. Because of traditional patterns, it is doubted that the Japanese will ever undergo complete westernisation of dietary habits or eat the amounts of meat consumed in the west.

The supply side is dealt with in Chapter 2. Domestic beef cattle raising since World War II is placed in perspective to the rest of the rural sector. As Japan now imports more than half its food, the chapter traces the development of trade, especially that of beef imports. Chapter 3 contains a detailed description of the institutions involved in formulating and administering government policies with respect to beef, and the political forces concerned with the highly sensitive industry. The co-existence of the traditional Wagyu beef sector and the modern feed-lot dairy beef sector is described in Chapters 4 and 5, respectively. The second part of Chapter 5 highlights longer term obstacles to Japanese beef production.

Slaughtering, distribution and marketing of meat has been one of the last sectors of the economy to modernise, and has had considerable government assistance in so doing. These new developments are examined in Chapter 6, with implications for the beef import trade. Japanese beef imports are controlled by an administratively complicated quota system linked to a stabilisation scheme for wholesale prices. The operation of these schemes is detailed in Chapter 7, with a review of the major criticisms of the procedures. Two important sections are devoted to the diaphragm beef issue, and to the question of who benefits from the substantial profit margins on beef imports.

Critics have suggested a deficiency payment scheme as a feasible alternative to import quotas, similar to the one operating to protect the price of feeder cattle. The scheme is described and evaluated in Chapter 8. Future beef production is largely dependent on the number of feeder cattle available; the possibilities for producing these domestically or for importing them are also examined. Japanese beef producers are heavily and increasingly dependent on overseas sources for supplies of livestock feedstuffs. The related issues and policies are discussed in Chapter 9, and the schemes which were introduced to create buffer stocks and stabilise costs are evaluated.

The changes which have taken place in the industry over the past 20 years are summarised in the final chapter. These changes have not been random but part of a larger mobile tapestry. Having given an appreciation of the interrelationshps between the threads of the past, the book concludes with some comments on the emerging future pattern. The Japanese government forecasts are examined, and implications are drawn for the future of beef. Impediments to liberalisation of beef trade, and alternative policies are discussed. There is a high degree of political rationality behind the present import policies. The controls preserve the traditional role of beef importing companies and allow them to capture most of the financial benefits associated with restricted market access and high retail prices. Thus, despite the pressure to liberalise the trade, the author concludes that there is no possibility of the system being radically altered in the next few years.

Despite the less than encouraging outlook for Australia, the book provides a readable, well-presented analysis of a highly complex subject, which will allow anyone involved in the industry to formulate reliable expectations about prospects in the Japanese beef market. For anyone concerned with the beef trade, it is essential reading.

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The World's Beef Business. By J. R. SIMPSON and D. E. FARRIS. (Iowa State University Press, Ames, Iowa, 1982.) Pp. 334, ISBN 0 813 80960 6 (Hardback); 0 813 81924 5 (Paperback).

Simpson and Farris give an overview of the world's beef industry. They tackle this problem by adopting a 'systems approach' to this complex industry. Using this approach, the authors systematically analyse the structure, performance and problems of the industry and offer solutions to increase efficiency and progress. The chapters run the gamut from production to retailing and the authors make forays into animal health, cattle breeds, futures markets, projections and policy considerations. There is a concentration on the most important areas – particularly the United States – in terms of production, trade and distribution. Both low and high cost systems in developed and developing regions are covered. Bottlenecks, policies and practices that impede or enhance the industry's growth are identified.

In Chapter 1, the authors give an overview of the complexity and diversity of the world beef business. In Chapter 2, they analyse the price determination mechanism for beef in terms of demand and prices in a competitive economy, marketing margins and price spreads, the role of income, price and income elasticities, retail prices and price discovery. Taste and habit factors and the growing competition from other meats are only briefly considered.

The diversity of production systems that exists in the United States, Latin America, Australia, Europe, Africa and Asia is outlined in Chapters 3 to 5. The industry is viewed also within the global context as a component of the feed and food supply chain, and as either supplementary to other farm enterprises or as a by-product of the dairy industry. Special attention is given to explaining the way in which the systems evolve and, consequently, to the developing countries which have failed to benefit from modern management and technology.

Health and sanitation regulations are among the primary obstacles to expanded trade. These, the prevalence of diseases, and a method of evaluating control and eradication measures are discussed in Chapter 6.

Simpson and Farris deal with the economic and financial aspects of beef production at the macro- and micro-economic levels in Chapters 7 and 8. The ways in which cattle are marketed in various parts of the world are examined in Chapter 9, with particular consideration of how cost-price relationships and national infrastructure affect these markets.

In Chapter 10, the authors deal with wholesale and retail marketing, and discuss beef processing plants, the benefits that accrue from economies of scale, and the significance of capacity utilisation in reducing costs. Other sections cover plant location, product preservation, storage and transportation, and selection among export sectors (live cattle, frozen, cooked or chilled beef) for development stimulation.

World trade in beef is detailed in Chapter 11. Trade in beef and veal doubled between the early 1960s and the late 1970s, but has remained at about 10 per cent of the production of major beef exporting countries. Australia took over from Argentina as the largest exporter with nearly 25 per cent of world trade. The United States accounts for approximately 33 per cent of world imports, which is slightly less than the EEC. Unfortunately, because data for the book are all pre-1980, the recent dramatic turn-around in trade, with Brazil and the EEC moving into positions as major exporters, has not been covered.

The section on trade in by-products deals largely with hides, but (possibly through the lack of data) does not cover other important by-products such as offals, tallow or bone and meat-meals. Three sections are devoted to policies, including tariff and non-tariff barriers, which affect beef trade. Generally, these policies are designed to deter imports in order to protect the domestic market. Regulations of the United States and the EEC are detailed, but not those of Japan or the Republic of Korea. It is concluded that beef trade is governed to a much greater extent by government policies than by demand and other economic considerations. Discussion of the role of Meat and Livestock Boards and organisations such as the International Meat Council could have been usefully expanded in this section, rather than being relegated to a footnote.

In the final chapter, Simpson and Farris discuss projections of world supply and demand for beef, then tie these forecasts to feed grain production, to determine the extent to which global beef production should be stimulated. The authors conclude that while the beef industry is versatile and complex, a vast amount of unnecessary waste exists in some economies and improvements can be made everywhere. Policy changes and technical changes required to bring about improvements are recommended. These recommendations are in the areas of factor supply and marketing, research and education, livestock and feed production, and institutions at national and international levels.

In general, the systems approach of applying the principles of industrial organisation to the beef industry is successful. There is a balance of economic theory and practical information. The inclusion of even the most recent price and quantity data and the fast moving events in international trade ensure that a book of this sort is necessarily out-dated as soon as it is published. However, the authors provide a comprehensive long-term perspective on the industry for students and professionals, and the bias toward the United States should not deter widespread readership. The reference lists are useful starting pionts for those requiring more detail on areas which are touched upon only cursorily in the text.

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Taxation of Mineral Rent. By ROSS GARNAUT and ANTHONY CLUNIES ROSS. (Clarendon Press, Oxford, 1983.) Pp. 342, ISBN 0 19 828454 3.

In this book Garnaut and Clunies Ross provide a comprehensive discussion of all aspects of the taxation of mining activities. In addition to the tax regime, they examine the related issues of the provision of infrastructure by the public sector in return for either a share of the equity or full cost pricing of the services and the conditions under which the government itself should undertake exploration. They do not consider other economic problems of the mining sector such as conservation, land rights or pollution. In its essence, the book is an elaboration of their well-known article (Garnaut and Clunies Ross 1975). However, the views contained in this book have been influenced significantly by the subsequent debate in Australia, in particular the Brown tax proposed by Peter Swan and the advocacy by several economists of the auctioning of mineral rights. The former is now regarded by Garnaut and Clunies Ross as an alternative which may be preferred to their resource rent tax in some circumstances. The latter is recommended in cases where the extent of the deposit is largely known because of prior government exploration and for petroleum and natural gas fields which are released in the form of small blocks in areas of known geological character. Hence, their earlier single-minded devotion to the resource rent tax has weakened.

The authors begin with an account of the nature of mineral rent, followed by a discussion of the decision by private companies to operate a mine. Relatively little and, in my opinion too little, attention is devoted throughout the book to the more vexing problems of the decision to explore. The latter decision is couched in the rather old-fashioned terms of the 'supply price of investment'. Subsequent chapters are devoted to the desirability of public investment in resource development, relationships between governments and investors, types of rent taxes, and various criteria for evaluating the choice between tax bases—the neutrality of rent taxes, maximising government revenue and the degree of revenue uncertainty, 'imposition' (that is, the difficulties of determining the parameters of the tax regime) and 'administration' (that is, enforceability). In addition, the authors discuss the dissipation and diversion of mineral rents, problems of instability associated with lumpy mineral projects, and the actual tax regimes in Indonesia, Papua New Guinea, three Commonwealth African states (Botswana, Zambia, and Tanzania), Australia, the United Kingdom and the United States.

While the book is intended mainly for those devising tax systems in developing countries, the application of the principles is not limited to those countries. Perhaps the only facet which is peculiar to developing countries, or more exactly to a subset of them, is the weakness of the tax administration which makes problems of devising a tax system and enforcing it more acute. These problems can be, and have been, overcome by advisers from other countries financed by international agencies such as the World Bank and the Commonwealth Secretariat. Other problems of taxation apply to all countries to a greater or lesser degree. For example, the instability of revenues accruing to the government and of employment resulting from a mining project which is large in relation to the national economy would seem at first glance to be more important in cases such as the Bougainville Copper project in Papua New Guinea but analogous problems arise for state governments within Australia. The problems of theory and implementation are universal.

The targeted group of tax devisers will no doubt find this book quite valuable. It systematically canvasses all of the major types of rent-based and non-rent-based taxes which are used or have been proposed, and the strengths and limitations of each. The authors' advocacy of a rent-based tax is undoubtedly sound and their treatment of the main possible forms of such taxes is realistic and thorough. The descriptions of the tax regimes in the selected countries are a useful source of comparative information and inspiration to those countries whose tax regimes are based largely on distorting forms of taxation such as royalties. In this regard I note their judgment of the Australian system:

> The Australian system has been one of the less efficient examined in this book from the point of view of maintaining incentives to full utilisation of the mineral endowment, and, with the possible exception of the levies on crude petroleum, also from the point of view of revenue maximisation (p.260).

It is to be hoped that legislators in this country can be made aware of our poor policy-making performance in this area. In all of the countries examined there has been some movement toward rent-based taxation of mineral activities. This puts Australian developments in a useful perspective. For the targeted group, nothing more needs to be said other than that they or their advisers should study the book.

For economists interested in principles of mineral taxation, the book will also be valuable but there are problems with the authors' analysis. In parts the logic is obscure and some individual statements are demonstrably contradictory or false. These difficulties derive from two weaknesses in their formal analysis. First, they do not set up the problem of choosing an optimal tax regime formally as an optimisation problem and second, their analysis of the uncertainty aspects of the choice is casual and limited. The lack of a formal theory of optimisation leads them into loose statements or errors concerning both the government which is levying the tax and the mining company subject to the tax.

Concerning the government, the authors approach the problem by setting out multiple criteria and presumably weighting them in some fashion. Implicitly, this is tantamount to maximising some objective function of the criteria. The four criteria listed in Chapter 7 are the neutrality of the tax regime, maximisation of government revenue, reduction of the variability of government revenues, and the distribution over time of the government revenues. Each type of tax is considered at length from the point of view of each criterion. This is unsatisfactory in several respects. First, the criteria are vague. For example, it is annoying to find repeated references in the book, as in their 1975 article, to the 'maximisation of government revenue' when, as they explicitly state, the value of government revenue is not a single magnitude but a probability distribution defined over states of the world. At times the reader can infer that they are talking about maximising the expected value of government revenue. Since they are also concerned with the risks to the government as the revenue recipient, it is contradictory to assume that the government is risk-neutral and seeks to maximise the expected value of its income. At one point they aver that the government seeks both to maximise revenue and to minimise risk (undefined) (p. 87). This mathematical impossibility reflects confusion. Furthermore, the other two criteria pose basic difficulties. It is not clear why government preferences over timing of the distribution of its revenues pose a problem. The government can compare distributions over time by reducing each stream to its present value using its discount rate. If the problem is one of macro-economic management and/or intergenerational distribution of revenue flows, there is a strong presumption that instruments of government stabilisation policy which bear directly on the problem are likely to be more effective. Indeed, the authors reach this conclusion at the end of Chapter 12. Had they stated it originally, they would have spared the reader a lot of roundabout argument. Finally, neutrality of mineral taxes or any other taxes is not an objective of tax policy, it is a property of a tax system which is desirable if and when it aids the pursuit of the objective function.

The puzzle to this reader is why, in dealing with these questions, they did not follow the excellent example of Leland (1978). As Leland demonstrated, one may treat the dual aspects of expected revenue and risks to the government by having the government maximise an expected utility function which, in the manner familiar to students of portfolio theory and other applications of the theory of decision-making under uncertainty, evaluates the mean value and the risk of each distribution appropriately given the attitudes to risk of the risk-averse government. Leland further demonstrated that the optimal rent-based tax is indeed neutral under a variety of circumstances. In the one reference to his work (p. 89), they demonstrate their awareness of it and they have borrowed his terminology of conditional payments but they do not appear to have understood it. Of course one may protest that one does not share his faith in the von Neumann Morgenstern theory or that risks may be diversified by the share market or other mechanisms, but Leland has shown the great advantages of a formal statement of the optimisation problem to clear one's head over the main issues.

Concerning the modelling of the mining company's decisions, the authors assume that risk can be evaluated by adding a risk premium to the discount factor of the company. It can be shown that this is congruent with the von Neumann Morgenstern theory under the dual restrictions that the utility function is time additive and has sub-utility functions such as the certainty equivalent of a random period return decreases geometrically with time. That is, one interpretation of this model is that it is a special case of the general Leland theory.

In terms of practical proposals, the Brown tax based on annual cash flows is really just another method of collecting a tax based on mineral rent for a long-lived project. The principal difference from the Garnaut-Clunies Ross method of cumulating the net assessable receipts is that their tax is one-sided in that it only applies to positive values whereas the Brown tax is two-sided and implies a cash payment by the government in the event of negative cash flows. This difference has been stressed by Ball and Bowers (1984). It is obviously possible to modify the resource rent tax in an analogous way to permit government cash payments.

The publication of this book is very timely in Australia in view of the present debate about the resource rent tax. Australian mining companies will be horrified to read that the authors recommend a maximal marginal rate of tax of:

> between 70 and 80 per cent, or possibly rather higher on petroleum, except where an auctioned fee is overrated under favourable circumstances, in which case the maximum might be 60 to 70 per cent for hard minerals and 75 per cent for petroleum (p. 330).

Since they do not recommend the threshold rate to be used to determine the base of the tax, it is not clear what tax liability such rates would impose on a company. Garnaut and Clunies Ross should be essential reading for all of those engaged in the debate in Australia but its specific recommendations are not the last word.

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Leland, H. (1978), 'Optimal risk-sharing and the leasing of natural resources, with application to oil and gas leasing on the OCS', *Quarterly Journal of Economics* 92, 413-38.

Single Equation Methods in Econometrics: Applied Regression Analysis. By H. E. DORAN and J. W. B. GUISE. (University of New England, Armidale, 1984.) Pp. 336, ISBN 0 85834 536 6.

This textbook is based on a one-semester course in regression analysis taught to students from varying backgrounds. The tone of the book is set by the decision to avoid matrix algebra and the frequent reference to worked examples using the MINITAB computer package. The text is thus designed primarily to train practitioners. Used with MINITAB, the book would provide the basis of a good course for non-specialists.

Most of the standard regression topics are covered: estimation, hypothesis testing, goodness of fit, multicollinearity, dummy variables, lags, heteroscedasticity and autocorrelation. There is a brief introduction to two-stage least squares through instrumental variables. Sections are devoted to the use of dummy variables in forecasting and to testing between linear and log-linear models. These practical techniques are frequently not covered in intermediate texts. In a useful final chapter the authors apply econometric techniques to an investigation of aggregate consumption behaviour in Australia using a number of alternative models. It is a pity, however, that the work of Anstie, Gray and Pagan (1983) is not considered.

The decision to eschew matrix algebra leads to some difficulties. For example, it is necessary for the authors on pages 92-3 to explain the (X-PRIME X) INVERSE print-out on MINITAB. The book would be improved by presenting the linear model in matrix form, if only in an appendix. Conceptually, the matrix model is no more difficult for students to understand than, say, the proof for consistency of two-stage least squares which is given.

Agricultural economics students attend the course on which the book is based but this is not especially reflected in the text. The only major reference to experimental data is in a section detailing a lack-of-fit test. The introductory pages emphasise that in the classical model the explanatory variables are taken to be fixed; it would have been helpful to illustrate this using replicated agricultural data.

The text could be strengthened in one or two places. The section on dummy variables (pp. 155-6) does not mention the reason for standardising (the 'dummy variable trap') and does not explain that the coefficients measure net seasonality. The treatment of autocorrelated errors is confined to first-order processes. The standard errors on the equation estimated by two-stage least squares on page 252 have been calculated using an incorrect estimate of the error variance. Overall, however, the material is well presented with a nice balance between formal statement and explanation.

It is clear that the authors have put much effort into communicating the skills and arts of applied econometrics to their students. It is fortunate that John Guise was able to transmit this to a wider audience before his untimely death.

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Reference

Anstie, R. K., Gray, M. R. and Pagan, A. R. (1983), 'Inflation and the consumption ratio' in A. R. Pagan and P. K. Trivedi (eds), *the Effects of Inflation*, Centre for Economic Policy Research, Australian National University, Canberra.

Evaluating Technology for New Farming Systems: Case Studies from Philippine Rice Farms. By C. BARLOW, S. JAYASURIYA and E. C. PRICE. (International Rice Research Institute, Los Baños, 1983.) Pp. 110, ISBN 971 104 079 4.

Adoption, Spread and Production Impact of Modern Rice Varieties in Asia. By R. W. HERDT and C. CAPULE. (International Rice Research Institute, Los Baños, 1983.) Pp. 54, ISBN 971 104 083 2.

Consequences of Small Farm Mechanization. By IRRI and ADC. (International Rice Research Institute, Los Baños, 1983.) Pp. 184, ISBN 971 104 082 4.

At first sight, these three books are very similar. All are published by the International Rice Research Institute, and the subject matter in all three is technological change in Asian rice farming. Upon closer examination, the differences between them are more striking than any similarities. Accordingly, what follows comprises three independent reviews rather than a single integrated review of three closely related books.

The book by Barlow, Jayasuriya and Price presents some results from an IRRI project with the ambitious aim of developing methods to evaluate experimental technology for small rice farms. The more modest objective of the specific study reported in this book was to analyse the impact on household net returns of the change from single to double cropping of rain-fed rice. Ten case study farms, divided between two separate sites in the Philippines, were selected, and linear programming was used to analyse the whole farm impacts of technology adoption. While this approach is scarcely innovative, in the circumstances it probably represents choice of the 'appropriate technology'. Furthermore, the authors explicitly recognise the main limitations involved in their approach, including a highly restrictive method for incorporating risk considerations into the model, and a failure to address rigorously the aggregation problem involved in extrapolating from case study results to equivalent regional results. Notwithstanding these problems, the authors found a reassuringly high level of correspondence between the responses to the new technology predicted by the model, and actual responses revealed by a complementary district level investigation of the spread of the same technology.

Specialists interested in the problems of double cropping rain-fed rice in the Philippines will find much of interest in the detailed analysis of the reasons found for the sensitivity of innovation effects to farm (and farmer) specific variables. By the same token, the extrapolation of these findings to other regions is suspect given the revealed sensitivity to location and farm specific influences. Furthermore, because data for the whole-farm analysis were collected concurrently with diffusion of the technology being studied, the authors' conclusion that their approach can be successfully modified to predict, in advance, the 'appropriateness' of new farming inputs and/or practices cannot be accepted without qualification. Economists' credibility in the difficult area of technology assessment can only be established by successful *ex ante* prediction of consequent effects.

In contrast to the other two books, the paper by Herdt and Capule is derived largely from secondary sources. The first main section is a compendium of information about the development and introduction of modern rice varieties into eleven rice growing countries in Asia. This is followed by an analysis of the contribution of modern rice varieties to increased production in eight of these countries, while the third main section contains a comprehensive review of the literature on adoption of these varieties. An apparently simple but ingenious method is used to partition increased rice output from 1965 to 1980 into components attributable to increased adoption of modern rice varieties, increased fertiliser use, increases in the area of irrigated rice, and all other effects. It was estimated that during the period studied, each of the above four factors increased the value of production by \$4.5 billion to \$5 billion. Regrettably, the methods used to derive these results are not described in sufficient detail to form a judgment about possible estimation biases. The review of the adoption and diffusion literature relating to modern rice varieties provides a most useful reference source for anyone unfamiliar with that literature. Particularly useful is the careful sifting of the empirical evidence on the relationship, or more accurately lack of a relationship between adoption and farm size. It is disappointing, though, that the authors do not seem to be more familiar with recent theoretical work by economists on the dynamics of the diffusion process, as the framework they use to discuss adoption studies compares unfavourably with that in Barlow et al. Despite these reservations, this volume should serve as a valuable introductory reference on modern varieties of rice in Asia, and is recommended as such.

The last book is a collection of papers by various authors on the controversial issue of mechanisation on small farms in a selection of Asian countries. All of the papers included in the book report results of collaborative research funded by USAID and conducted by IRRI and other institutions. Almost all of the studies relate to cultivating equipment (that is, tractors or power tillers), irrigation equipment (pumps and/or tubewells) or post-harvest equipment (threshers), but there is a noticeable lack of uniformity in the quality of the papers. Some are little more than descriptive exercises, while others, such as the study of productivity growth of the Thai farm machinery industry by Paitoon Wiboonchutikula, employ relatively sophisticated analytical procedures. However, none of the papers engage in the sort of polemic exercise often encountered in papers on this topic. Another noteworthy feature is the liberal interpretation of the title to permit the inclusion of several papers analysing changes in the machinery industries servicing agriculture as well as research on consequences for the rural sector of farm mechanisation. Overall though, this book is dragged down by too many pedestrian papers, and I found it the least interesting of the triplet.

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A Re-Appraisal of Forestry Development in Developing Countries. By JAMES J. DOUGLAS. (Martinus Nijhoff/Dr. W. Junk Publishers, The Hague, 1983.) Pp. 178, ISBN 90 247 2830 4.

The essential feature of the development crisis is that after more than two decades of development, achievements are meagre, and most importantly, unevenly distributed. The poorer half of the world's population is being hopelessly squeezed in the struggle for existence and often getting less than what it received some two decades ago. In many developing countries there is a 'development weariness' and a strident demand for social and economic revolution. At the same time there are signs of 'aid weariness' in the developed countries, with voices seeking an end to a tenuous partnership.

It is against this background that the author of this book presents a timely and relevant reappraisal, particularly in regard to forestry development in the less developed countries. One of Douglas's principal objectives is to argue that the extent to which forestry economists, analysts, and administrators in developing countries have responded to new directions in thinking about development has been limited and indeterminate.

The book begins with a consideration of the general concepts and issues in economic development. Douglas then tries to establish the link between these general economic issues and the specific concerns and characteristics of the forestry sector. In the final part of the book, the author draws together earlier obervations into a restatement of findings and conclusions, emphasising that the essential changes required are 'conceptual rather than technical'.

Mahbub ul Haq (1976) enumerates some of the sins of development planners and highlights the divorce between planning and implementation, the neglect of human resources and the inadequacies of growth without justice. Development planners seem to fall willing victims to changing development fashions. Indeed, over the past few decades we have witnessed shifts in emphasis such as promoting import-substituting industries, stimulating exports rather than import substitution, fostering rapid agricultural growth as the answer because industrialisation is an illusion, giving priority to population control policies as all development will be swamped by the population explosion, and rejecting GNP growth because distribution must come ahead of growth.

Traditional growth strategies have failed to benefit vast masses in most developing countries and there is a need to define new development policies for a direct attack on mass poverty. The new perspective on development must recognise that GNP growth does not often filter down to the poor. Market mechanisms are often distorted by the existing distribution of income and wealth, and therefore are an unreliable guide to setting national objectives. The consumption patterns of a privileged minority tend to dominate the composition of trade and the direction of import substitution strategies (Furtado 1973). Generally, institutional reforms are more decisive than the appropriate price signals for fashioning strategies for development. It is important that the satisfaction of basic human needs must take priority over market demands and development styles should build development around people, rather than people around development. Production plans must incorporate distribution and employment policies. The vital direction of the distribution policy should be to increase the productivity of the poor by a significant change in the direction of investment toward the poorest section of society. Perhaps the most important requirement is a drastic restructuring of political power if development is to spread to the vast majority of the population.

Douglas recognises that the forestry sector is no exception to these conclusions about economic development and that there is also no universal solution to the problems of the forestry sector of all less developed countries. The author considers that the Westoby statement on the role of forestry in development provides a defensible set of 'logical requirements' for the forest sector. The view, however, that the governments in less developed countries exist simply as instruments for exploitation of the rural masses, is cynical. The FAO's strategy, on the other hand, optimistically assumes a predispositon on the part of governments to carry out necessary measures to transform forestry. The latter however, must remain a sensitive internal matter.

Most of the examples cited by Douglas relate to Bangladesh. There is a striking lack of reference to forestry in India and Pakistan, and a fuller treatment of the Chinese experience would have been interesting. However, the central proposition has sufficient force and can stand alone.

The book is well structured and is a welcome contribution to the literature on the development crisis. The book should be read by all foresters and planners concerned with the development of the forestry sector.

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The Economic Imagination: Towards a Behavioural Analysis of Choice. By PETER EARL. (M.E. Sharp Inc., Armonk, N.Y., 1983.) Pp. 206, ISBN 0 87332 250 9.

'This is a stirring, exciting book of high virtuosity and impressive resource' (G. L. S. Shackle, Foreword). 'This is a beautifully written sophisticated critique of orthodox economics and a genuine attempt to construct an alternative theory of choice' (Mark Blaug, in the publisher's comments). 'If [the book's] arguments are accepted many of the thousands of pages written by neoclassical economists who dominate the profession will seem to have been a misdirected waste of time' (p. 1). These three statements just about sum up how important three economists, one of them the author, take this book to be. No doubt time will tell, but it seems it might be wise to take the book seriously just in case in turns out to be a significant turning point in economic thinking.

This reviewer, while recognising that the book has many merits, is unconvinced that it marks the start of a new paradigm.

As the title implies, the author presents a 'new' theory of choice, cast mainly in the context of consumer behaviour and claimed to be superior to the neoclassical utility-based model. The model advocated is a lexicographic filtering device wherein the characteristics of consumption goods are assigned a priority ordering in relation to attainable target levels. Uncertainty in the attainment of the satisficing levels of particular characteristics is recognised and incorporated using an adaptation of Shackle's focus loss-potential surprise model.

The implications drawn by Earl for consumer behaviour are related particularly to the choice of firms' marketing strategies. In this context, the author is able to derive some interesting general conclusions about how a firm might set about improving its place in the market. In particular, the notion of a repertory grid system of analysis is advocated as a means of identifying the views of the world held by different potential customers. These views are presumed to influence people's processes of choice.

The author claims that the strengths of his theory lie in its closer conformity with the way people actually make choices as well as in the relative ease with which the theory can be made operational. On the first ground of conformity with actuality, the evidence presented in the book is very thin, while the much greater complexity of the behavioural theory would seem to make it difficult to put to use. As Earl himself notes:

> Neither predictive realism nor assumptive realism can logically provide a wholly satisfactory case in favour of a particular theory . . . One chooses a theory according to some personal criteria and should then use it with caution (p. 19).

Such a view seems hardly consistent with the author's confident dismissal of neoclassical economic theory as 'dangerously misleading' (p. 188). Moreover, while the author's views about what makes a satisfactory theory, summarised in the quotation above, may have some merit, predictive realism is surely a necessary, if not a sufficient, condition for an acceptable theory. It is disappointing, therefore, that the author fails to include any empirical evidence in support of the approach he advocates.

An interesting feature of the book is the inclusion of a number of imaginary scripted dialogues between the author and a supposed critic. The trouble is that, while these exchanges do cover some of the points that this critic would have wanted to raise, they naturally do not cover all one's objections. Consequently, this reviewer was left frustrated that many of his objections were, as it were, sidestepped by exchanges of views that seemed artificially biased in favour of the one proponent.

Kuhn (1970) argued that the members of a discipline do not readily abandon the existing, well-established paradigm, and no doubt this resistance to change is at least as characteristic of economists as of other disciplines. The paradigm will be overthrown, according to Kuhn, only by a revolution in thinking that is likely to be born in the minds of iconoclastic, generally younger members of the discipline. The older, well-established members will resist the new ideas which obviously depreciate their human capital. I therefore commend this book to the attention of younger agricultural economists in case it represents an early salvo in the coming revolution.

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Reference

Kuhn, T. S. (1970), *The Structure of Scientific Revolutions*, Chicago University Press.

Option Pricing: Theory and Applications. By MENACHEM BRENNER (ed.). (Lexington Books, D. C. Heath and Co., Lexington, Massachusetts, 1983.) Pp. 235, ISBN 0 669 05714 2.

To the outsider, the study of option prices probably sounds obscure, non-controversial and – well – boring. The facts are quite different. Since the publication in 1973 of a famous paper on option pricing by Black and Scholes in the *Journal of Political Economy* there has been a great deal of academic interest and activity in option pricing. A rapidly growing body of literature has resulted. Parallel to this development has been the equally astonishing growth of option markets – especially in Chicago, but also in London, Amsterdam, Sydney and elsewhere. It was inevitable that one day someone would suggest a conference of leading academics and practitioners specialising in the area. Someone did and a conference was duly held in New York in January 1982. Nine of the papers presented at the conference are reproduced in this volume.

With one exception, none of the papers was available in the literature at the time of the volume's publication. This exception is a paper on bond pricing from an option theory perspective by Brennan and Schwartz. It is a valuable paper but as no one need buy the book in order to read it (you could read the September 1982 issue of *Journal of Financial and Quantitative Analysis* instead), there is no need to comment further on it.

There are two survey papers: Cox and Rubinstein on option pricing models and Galai on empirical tests of option pricing. Both papers are thorough and well written and as they may well prove the most useful of all the papers I will discuss them in a little detail. Cox and Rubenstein present the development of option pricing theory in the context of binomial option pricing. This is often said to be more intuitively appealing than other approaches though it is still not to be recommended for the mathematically faint-hearted. This chapter deals almost exclusively with 'call' options (that is, options to buy), and makes little mention of 'put' options (that is, options to sell). To a large extent this reflects both market emphasis and academic developments but some coverage of 'puts' would have been appropriate. Galai's survey of empirical tests provides a very useful summary of the evidence. Its particular strength is his clear statement of the practical problems confronting the researcher and of the joint hypotheses involved in most tests. But options are not forgotten. For the most part, Galai manages to include enough detail to defeat any charge of over-simplification without including so much detail that the message is lost.

Of course, both papers are now somewhat dated. For example, Cox and Rubenstein unwittingly reproduce on page 15 a small error made by

Geske in his article in the December 1979 issue of the *Journal of Financial Economics*. This was subsequently corrected in a 1981 paper by Whaley in the same journal. Similarly, an important empirical study (also by Whaley) was published in the *Journal of Financial Economics* in 1982—too late for Galai to include in his survey. Fortunately, this gap is partially filled by Blomeyer and Klemkosky in Chapter 5. Both Whaley and Blomeyer and Klemkosky test the same model. Both papers have their strengths. Whaley's sample is larger but Blomeyer and Klemkosky's data may be of superior quality, being transaction-based rather than weekly closing prices.

For agricultural economists, the papers of most direct relevance are probably 'The Valuation of Commodity Options' (Chapter 8) by Hoag and 'Options on Commodity Futures: Recent Experience in the London Market' (Chapter 9) by Figlewski and Fitzgerald. Of course neither paper will be very intelligible without at least a background knowledge of option theory and empirical testing. Both papers deal with options-on-futures, a somewhat complicated contract in which the underlying asset is a futures contract on a commodity, rather than the commodity itself. Hoag's paper also deals with the simpler (though in practice less frequently encountered) contract in which the underlying asset is the commodity. Hoag's is the longer and more rigorous paper but both deserve their place in the volume. Very little is available on these contracts in the published literature despite a recent growth of market interest in this form of investment.

The remaining three papers are even more specialised. Burton (Chapter 2) contributes some pessimistic thoughts on the application of the option pricing approach to the analysis of the term structure of interest rates. Jarrow and Rudd (Chapter 4) present an empirical test of their own option pricing model (*Journal of Financial Economics* 1983). Finally, Brealey, Hodges and Selby (Chapter 7) simulate the behaviour of a portfolio of risky coupon bonds. The connection with option pricing is that the stockholders may 'buy back' their firm from the debtholders by paying the bond's face value. This is an option. To reach this option they must pay the last coupon payment which is thus an option on an option or 'compound option'. The second last coupon is an option on an option on an option . . . and so on. This has been an important secondary theme in the option literature and can be traced back to the original Black-Scholes article.

An overall judgment? If you know a little about options and want to learn more or if you already have an interest in options, then this book is worth having.

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