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BOOK REVIEWS

Tariff Politics—Australian Policy-making 1960-1980. By LEON GLEZER. (Melbourne University Press, 1982.) Pp. 360, ISBN 0 522 84190 2.

Few topics in economics have commanded as much interest and debate as tariffs, especially in Australia, where tariff policy has provided a rich field of economic pathology. In reading Glezer's engrossing account of the history of tariff policy since Federation, I was reminded of the story of Lord Kaldor, who served a stint as an adviser to the British Treasury: after his initial weeks reviewing Treasury policies of preceding decades, he complained bitterly that 'All of the interesting mistakes have already been made'. Glezer's story of the politics and some of the economics surrounding our mistakes in tariff policy is detailed, perceptive and, for the most part, well written. (There are occasional lapses into dense and rather opaque prose, probably reflecting the specialist genesis of the book as a Ph.D. thesis in political science.)

Glezer begins by outlining the views and the interests of three camps. He distinguishes populists, corporatists and economists and records their political manoeuvres and counter-manoevres. Politics has been defined as the art of managing illusions, and there is no doubt that the populist illusions about tariffs have been very well managed indeed. High wages necessitate tariffs; protection is at the expense of the foreigner; tariffs create and defend jobs: illusions such as these have been very important in shaping our economic structure. To the average citizen they have sounded highly plausible, and at the official 'expert' level they encountered little opposition for many years. As Glezer points out, until the 1960s, economics had by-passed the Tariff Board—the main skills of the staff were in accountancy.

Glezer records that when Rattigan began building up a research section of competent economists in the late 1960s, he encountered resentment from a majority of the Board members and some staff. During my period as an IAC Commissioner in the mid-1970s, the research section was widely termed 'Disneyland', though much of the antagonism had abated.

Though Glezer's account goes back to Giblin, and before, the detailed story commences with the struggle between Melville, the first Tariff Board Chairman with economising tendencies, and McEwen as Minister for Trade, which culminated in Melville's resignation in 1962, and the succession of Rattigan. Rattigan's long struggle with McEwen and his Department is the core of the book, and Glezer's account of it strengthens my view of Rattigan as one of Australia's greatest public servants. Much of the reporting of this battle centres around a series of official inquiries and reports. The first of these was the Vernon Committee Report (1965), which made a vital contribution in 'stirring the possum' on tariff policy. The Crawford Report in 1973 recommended the conversion of the Board into the Industries Assistance Commission, and the Rattigan Report one month later recommended the 25 per cent tariff cut—clearly the peak of the economists' influence over tariff policy.

Glezer discusses the three government reports since 1973 which have represented responses to the reformist proposals of the IAC. The Green

Paper (Jackson Report) of 1975 'elaborated the corporatist approach', which by then was the stance taken by Dr Cairns. (In the mid-1960s Cairns had been the leader of the economists in the A.L.P.) In 1977, after 18 drafts, the White Paper appeared, as an attempt to 'legitimate what the government was doing: granting assistance where politically necessary while accepting the IAC's recommendations where possible. The intellectual incoherence of that approach emerged clearly . . .' (p. 138).

The Crawford *Study Group on Structural Adjustment* (1979) warned against general reductions in protection whilst unemployment exceeded 'say 5 per cent', and also took up the Jackson Report's corporatist notion of encouraging 'attributes' of an industry (related to the 'key industries' idea). Nevertheless, says Glezer, 'the shift in assumptions from Jackson to Crawford, whilst hardly major, was more than marginal . . . and tended to add to the legitimacy of many of the underlying propositions which the IAC championed' (p. 144).

According to Glezer, from the defeat of McEwen's 1971 cabinet submission, which aimed to give the Tariff Board new guidelines, 'policy moved towards the acceptance of an eventual reduction of assistance' (p. 283). The hopes of some protectionists, that Rattigan's successor, McKinnon, would bring with him the 1960s attitudes of the Department of Trade, were short-lived.

The economic aspects of tariff policy are handled reasonably well by Glezer, though it is disappointing that the link between tariffs, resource allocation and exchange rates is not clearly explained. This might well have been done on p. 263, to show the superficiality of McEwen's 1967 claim that the effect of tariffs on farmers' costs was only marginal, no mention being made of the effect of tariffs on the relative prices of traded goods and non-traded goods.

Glezer is particularly interesting in his account of the vagueness and ambiguity of the old Tariff Board policy, which avoided any clear public specification of what should be protected and why. The refusal by generations of politicians and public servants to give precise meaning and coherence to the term 'economic and efficient' was no oversight. Vagueness in policy can serve as a political equilibrator, permitting consensus through flexibility. The conflicting interests all obtained 'at least symbolic bows to their claims' (p. 26). The Tariff Board served as an 'institutional buffer' and provided 'political insulation' (p. 285). Vagueness in policy permitted governments to reject Tariff Board advice when political considerations demanded extra protection, and to shelter behind the Board in refusing claims when politics permitted.

Glezer might have mentioned that there was nothing unique in the vagueness and ambiguity of the Tariff Board Act. Similar vagueness is present in other policy areas for similar reasons. In wage policy, the minimum wage is seen as 'the highest that the economy has the capacity to pay'. In restrictive practices legislation, the 'principle without content' (the late Eric Russel's phrase) is that practices should be proscribed which are 'against the public interest'.

Glezer summarises the 'buffer' role of the Tariff Board-IAC on p. 286 as follows:

The TB-IAC was a fine example of the complexities of buffer architecture. The risks of unfettered political control were muted by the public

commitment to seek advice. The Board and later the IAC were designed to diffuse responsibility and the focus of accountability to visible advisors while minimizing the consequences of reduced political control. But to be useful to government leaders, the advisory body needed to produce the advice they preferred. The ideal buffer for decision-makers legitimized their preferences while shielding them from pressure. Should the TB-IAC produce advice which had to be overruled, then the costs of a decision increased markedly. The government was then seen to be making the decision and rejecting the expert, independent and impartial advisors it had appointed . . . The imperative to avoid this outcome led to built-in tension in the relations between the political and bureaucratic leaders and those of the TB-IAC . . . To be a credible buffer for political leaders, TB-IAC had to be accorded authority . . . Yet the authority the advisor obtained should not be such as to free it from a degree of subservience which could maintain its usefulness.

In such conflicts, when ministerial pressure was exerted on the IAC, Rattigan replied by quoting his responsibilities under the Act, particularly those related to the obligation to give the government advice which took account of efficiency of resource use. Such letters of reply to Ministers were made public. Not surprisingly, Ministers became increasingly reluctant to issue special 'riding instructions' to the IAC which could result in public debate as to whether these conflicted with the Act. Glezer fails to emphasise that this particular ploy played an important part in Rattigan's success.

The political need for ambiguity, buffers and insulation is particularly strong in sensitive and emotive policy areas, and on p. 232 Glezer outlines some of the reasons why the tariff issue has 'aroused the passions'.

For the manufacturers who had reached maturity in the 1930s and were the managers during the postwar period, industrialisation was a dominant symbol. They saw themselves involved in the arduous task of nation-building through industrial development. Their worth to the country as the main providers of jobs and in strengthening its defence capability had often been given public recognition. These manufacturers had often begun in a small way, and had developed under the impetus of the war and import controls. They took pride in their personal success, a success all the more satisfying since they saw themselves to be pitted against overseas giants. Among the older generation of manufacturers, Australian importers who competed with locally made goods were *barely respectable citizens* (reviewer's italics).

Perhaps we should not be too surprised at the irrationality of our tariff policies over the years, bearing in mind the Rev. P. H. Wicksteed's dictum—'Economics is but a feeble barrier against passion'.

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Agriculture in the Australian Economy (Second Edition, Revised and Enlarged). By D. B. WILLIAMS (ed.). (Sydney University Press, 1982.) Pp. 422, ISBN 0 424 00092 X.

The agricultural economics profession in Australia will welcome the new edition of this book. The original edition was sponsored by the Organizing Committee for the Thirteenth International Conference of the International Association of Agricultural Economists which was held in Sydney in 1967. Since that time it has served as a standard reference. Yet, even when the original edition was published, an era of agricultural policy objectives was drawing to a close. The new edition, while it retains the basic structure of the original, has been prepared in recognition of the changes in the economic environment of agriculture over the intervening 15 years and the changes in policy direction.

What was the longest chapter in the original edition, on Agricultural Development Projects, has been deleted. The Editor, in his Foreword, has characterised these projects as 'a passing phase in Australian agriculture' which, having been recorded in detail in the original edition, have been subsumed in wider aspects of land and adjustment policies. All of the other original chapter topics have been retained. There are four new chapters, on rural research, transport, social structure and rural adjustment.

Jarrett and Lindner, in their chapter on Rural Research in Australia, provide a comprehensive review of the agencies involved in rural research, its funding, the allocation of research funds between rural activities, returns to research and the distribution of benefits. Taplin, in his chapter on Transport, concentrates on freight rate formation, both within Australia and for Australian exports, and the incidence of freight costs on farmers. This is a neglected topic within the Australian agricultural economics literature, and Taplin's chapter is an important contribution. Nalson writes on the Social Structure of Australian Agriculture from the viewpoint of the sociology of the industry of agriculture as an economic activity rather than of rural society *per se*. Musgrave's chapter on Rural Adjustment is a review of the policy background and policy instruments of the adjustment measures which have been a feature of Australian agriculture over the last decade. This has been a major change of policy direction since the original edition was published.

Other chapters have been variously revised, from being simply updated by their original authors to being totally rewritten by new authors. The themes of the last 15 years are well represented. Trebeck, in his chapter on Primary Producer Organisations, gives an account of the unity debate which culminated with the formation of the National Farmers' Federation in 1979. Stoeckel and Miller, in *Agriculture in the Economy*, reflect the growing professional interest in inter-sectoral linkages and the consequences of sectoral policies. Themes of mining booms, energy policy, effects on agriculture of tariffs and commercial policy, and exchange rate instability were not in the original edition. Harris, in his chapter on Agricultural Trade and its International Trade Policy Context, discusses the significance of the Multilateral Trade Negotiations (and parallel FAO, OECD and UNCTAD initiatives) of the 1970s for Australian trade. Lloyd, in his chapter on Agricultural Price Policy,

writes about the shift away from price stabilisation as it was practised in the 1950s and 1960s and the trend toward reduced agricultural protection in the 1970s.

References abound in the new edition to the 1974 green paper on *Rural Policy in Australia* and to reports by the IAC. The Editor notes these and several other landmarks (the Borrie and Henderson reports and the accession by Australia to OECD membership) since the original edition.

Rural research has been elevated to chapter status from what was a chapter section in the original edition. There are many other topics which also could have justified chapter status. The Editor hints in his Foreword that his own special interest, education, could have been usefully so treated. This reviewer could make a case for a chapter on assistance. What is dealt with in a few paragraphs in the Prefatory Notes on official statistics could also usefully have been expanded into a self-contained chapter. But these are minor observations about a major revitalisation of this standard reference. As the reviewer in this *Journal* concluded of the original edition, the profession is heavily indebted to Williams for his thorough and discerning editing.

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Food and Agricultural Policy for the 1980s. By D. GALE JOHNSON (ed.). (American Enterprise Institute for Public Policy Research: Washington and London, 1982.) Pp. 229, ISBN 0 8447 2216 2.

This book contains papers that were given at a conference sponsored by the American Enterprise Institute in Washington D.C. in October 1980. The conference was held with a view to contributing to preparation of the *Food and Agricultural Act* 1981. It was attended by 70 persons from universities, business, farm organisations and government. A similar conference had been held prior to the introduction of the *Food and Agriculture Act* 1977.

The book will be of interest to people studying US agricultural policy. It provides a view of the consensus that existed at that time about the state of agriculture in the US economy, the level of satisfaction with existing policies and what were seen to be the issues for the new farm bill. The reader will have to look elsewhere for details of the *Food and Agricultural Act* 1981 and what it has meant for agricultural policy in the U.S.A.

The conference was organised into three main groups and, reflecting this, the book is presented in three parts. The first part includes the two papers outlining developments which have affected US agriculture during the 1970s and some of the effects of federal policies. The second part includes two papers looking to the future: one on potential developments in world food production, consumption, trade and farm policies and their effects on US agricultural policy; and the other on how the structure of the sector may change. The third part contains three papers concerned with issues that were likely to confront and shape future agricultural policy. At the end of each part is presented a brief summary of comments by the discussion openers.

The book has a very good foreword by Johnson who summarises the important points raised in each paper and by the discussion openers. Some plagiarism from the foreword is inevitable.

The first paper is by Penn on economic developments in US agriculture during the 1970s. His major thesis is that one of the most significant developments in agriculture during the 1970s was the emergence of relative resource equilibrium in this sector. This proposition is supported by historical trends in aggregate data about land in farms, the farm population, productivity in agriculture and growth in the importance of foreign markets to US agriculture. It is also supported by such things as: numbers, types and size of farms; sources, levels and variability of incomes and the wealth of farm people; and economies of size. He attempts to illustrate the conventional wisdom that (p. 42):

. . . technological advancements over time created efficiencies that could more effectively be captured by increasing the size of farms . . . [with the result that] . . . the cumulative effect has been the consolidation of farms and the reduction of unit costs of production and food costs; thus consumers were the ultimate beneficiaries of technology innovation and farm consolidation.

However, the attempt is deficient. The diagram (p. 43) of the 'envelope' of the long-run average cost curve round short-run average cost curves is appropriate. However, the addition of the short-run marginal cost curves and mention of prices would have avoided the statement that ' . . . the optimum operating point would be C1, where unit cost is lowest' (p. 42)—a situation which is true only in the limiting case of $\text{price} = \text{AC} = \text{MC}$. In drawing out the implications of his thesis, Penn argues that the problems facing US agriculture are significantly different from those of previous decades. In particular, the farm sector now has little slack; incomes of farm people compare favourably with those of non-farm people; many small farms no longer appear chronically poor, owing to the increased importance of off-farm income; a relatively small number of farms account for most of the food and fibre production; and, as international markets become more dominant, this means potentially much more instability.

In the second paper Gardner addresses the Consequences of Farm Policies during the 1970s. Gardner explores the proposition that US agriculture became more market oriented during the 1970s. This is done by presenting information about the main commodity programs relating to the difference between the average prices received by farmers and the support prices, the imposition of production controls, stocks of commodities held by the Commodity Credit Corporation, government payments made to farmers and the overall degree of protection to US commodities. While the assessment is that US agriculture became more market oriented, there were some notable exceptions (such as dairy) and the result has more to do with favourable movements in commodity prices than fundamental changes in policies. One change in policy was the introduction, in 1977, of farmer-owned grain reserves with storage subsidies, trigger prices and loan prices. While the essential features of this program are simple, Gardner explains how the whole program has become complex. It has shades of being touted as all things to all men and political expediency at election time. His tentative conclusion is that,

if the program had any effects on price variability in the short term, they were perverse. The poor performance of the program is echoed later in the book by Schuh. Gardner goes on to express misgivings about the disaster programs and subsidised crop insurance programs that were introduced during the 1970s. The paper closes with a discussion of the distribution of benefits from the agricultural policies.

The third paper, *World Food Production, Consumption, and International Trade* by Josling, documents the phenomenal growth in US agricultural exports in the 1970s, by commodity and by market. Josling explores the potential for growth in consumption and production of agricultural commodities. He suggests three typical results of world agricultural policies. First, production in developing countries is restrained by taxes, despite self-sufficiency goals. Second, the support given to farmers in developed countries weakens world markets and distorts trade patterns—at the expense of taxpayers and consumers in those countries. Third, price uncertainty in world markets generates policy reactions as countries try to divorce their own national policies from world market conditions at the cost of intensifying market instability.

Josling considers the realities are unlikely to change rapidly. Thus he urges policy makers to press for the development of a trading system that will reduce the concern that presently inhibits a more open approach to trade. This he sees as involving greater flexibility in the farm policies of developed countries. At the domestic level he considers there is a need to ensure that market information and facilities are adequate and that domestic market and income support policies be consistent with the realities of overseas trade.

Tweeten, in *Prospective Changes in US Agricultural Structure*, lists some successful elements of past changes in the structure of farms. These include: the gradual improvement of relative incomes of farmers, especially by families on small farms; reduced incidence of poverty; increased productivity with its effects on the use of resources and food prices; and elimination of drudgery from farm work. Tweeten is, however, pessimistic about the long-term outlook for the traditional family farm and points to the growth in size needed to keep farm incomes growing at the same rate as non-farm incomes. He does not consider farmland overpriced in relation to its prospective earning capacity, but emphasises the cash-flow problem created for farmers by inflation, especially for the moderate-size family farm. One of the more important conclusions he draws is that the commodity programs probably had no major impact on the size and number of farms.

The fifth paper, and the first of three concerned with issues likely to shape future agricultural policy, is by Schuh on *US Agriculture in an Interdependent World Economy*. Schuh develops two premises: that in the decade ahead greater dependence should be placed on market forces; and that general economic policies are more important to the welfare of rural people than agricultural-specific or commodity policies. He emphasises the increased instability now faced by US agriculture, the role of sound domestic monetary and fiscal policy, and the need for new international arrangements to provide more stability for agriculture. With Johnson he calls attention to the budget costs and economic waste associated with the production of alcohol from farm products.

In Johnson's paper, *Agricultural Policy Alternatives for the 1980s*,

emphasis is placed on the evolution of farm commodity programs during the past two decades. Johnson proposes more tinkering to maintain the trend of US agricultural policy becoming more market oriented. He argues that price supports should continue for the major crop commodities, but the level of support should allow available supplies to be allocated freely between domestic and foreign use. He opposes using 'cost of production' as the criterion for establishing target prices and argues that they should bear the same relationship to price support levels for each crop and should not be used to affect significantly the allocation of resources. Though critical of the program for farmer-owned grain reserves, Johnson considers it better than the previous control over stocks by the Commodity Credit Corporation.

The final paper, by Shnittker, outlines A Framework for Food and Agricultural Policy for the 1980s. He considers there will be four issues that will dominate discussion of food and agriculture during the 1980s. These are:

- (a) shortages of commodities and rising real prices for agricultural commodities (an issue disputed by many conference participants);
- (b) the declining role of price and income supports and programs to adjust production;
- (c) how to cope with rising real prices to the satisfaction of farmers, domestic consumers, foreign customers and budget planners; and
- (d) a grab bag of concerns about farm structure (such as farm size and rural life), conservation, and world grain reserves.

The book is remarkably free from editorial errors. My 'sin bin' contains only three—a misplaced label and shaded area on a diagram that contains no shading (p. 68), a 'developed' instead of 'developing' countries (p. 99), and a repeated line replacing the ending of a paragraph (p. 149).

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Investing In People. The Economics of Population Quality. (The 1980 Royer Lectures). By THEODORE W. SCHULTZ. (University of California Press, Berkeley, 1980.) Pp. 173, ISBN 0 520 04437 1.

Schultz's book is a collection of essays on the theme that the key to the future prosperity of mankind lies in increases in the acquired ability of people (investment in human capital) and advances in useful knowledge. The book is well written and presents Schultz's personal insights on the determinants of economic growth and his ideas on the proper organisation and role of education and research.

The seven chapters of the book are arranged into three topics: the role of investment in human capital and research in the economic development of low-income countries (three chapters); a chapter on the value of human time; and three chapters covering distortions in schooling in large cities, distortions in research and distortions in the economies of low-income countries caused by the international donor community. The book concludes with a summary, a bibliography and an index.

The first three chapters focus on the increasing ability of farmers in

low-income countries to modernise agriculture and increase productivity. These positive developments are attributed to increased investment in human capital (education, nutrition and health) and in indigenous scientific research capabilities. Despite these trends, Schultz argues that the large potential of agriculture in low-income countries is not being realised because farmers often face distorted economic incentives due to government policies which tend to favour urban people at the expense of farmers (for example, cheap food policies).

In the fourth chapter, Schultz notes that real hourly wages in the U.S.A. have risen five-fold in the period 1900 through 1975. This rise in the value of human time is attributed to the formation of new kinds of human capital in response to economic incentives. Schultz is critical of growth theories which omit changes in relative prices of the factors of production, since it is relative prices that provide the incentives to allocate resources to the various factors. The chapter concludes with an interesting discussion of the price and income effects of increases in the value of human time, for example, the effects of increased institutional protection of the rights of workers which favours human capital over property rights.

The last section of the book is devoted to a discussion of distortions in large school systems, research, and foreign aid. Schultz blames the inadequate schooling of children in the school systems of large cities in the U.S.A. on the organisation and administration of those systems rather than on the performance of teachers.

With regard to research, Schultz points out that creativity in research is essentially the hallmark of individual scientists, usually located in universities as part of small research teams. Unfortunately, the trend has been to large and inefficient research establishments. He argues that scientific research has the attributes of a public good, that researchers should put more effort into placing a value on their work, and that this should be used in negotiating with the electorate for research funds and more autonomy for universities. Schultz is critical of academic economists. For example, he believes that one of the primary functions of academic economists is to criticise the economics of society's institutions and that contemporary economists have devoted too little time to this enterprise.

Schultz argues that the international donor community has allocated too little aid to enhance the stock of human capital and strengthen markets in low-income countries. He also notes that many of the projects financed by donor capital have had zero production effects; for example, most capital projects in Central Africa have been failures. In reviewing cases of increased agricultural production in low-income countries, he finds that, where the production possibilities have become favourable due to agricultural research, and where price incentives make it worthwhile, additional capital is available due to the profitability of production.

I enjoyed reading this book and have no hesitation in recommending it to anyone with an interest in economic development, education and research.

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The Ultimate Resource. By JULIAN L. SIMON. (Martin Robertson, Oxford, 1981.) Pp. 415, ISBN 0 85520 440 0.

In this book, Simon presents arguments and analyses linking population policies and resource scarcity. They are difficult to separate, however, from often sweeping and scantily-substantiated generalisations and doubtfully-relevant historical or empirical arguments. Moreover, many Australian readers will be impatient with the racy style; for example, 'Hold your hat—our supplies of natural resources are not finite in any economic sense' and 'Grab your hat again—the long run future of our energy supply is at least as bright as that of other natural resources' Nevertheless, the attempt to isolate the substance is, on balance, rewarding.

The early discussions of resource scarcity are dated despite the 'surprising but good news' approach. These issues were extensively debated in the 1970s following *Limits to Growth* and the emergence of OPEC. Simon's conclusions are not significantly different from those of the then orthodox—now rarer—technological optimists.

There may still be some who believe that, in the absence of OPEC, price increases, the cost of the marginal barrel of oil (the relevant cost for an economist) for a world whose oil consumption growth was unconstrained by those price rises, would be close to the pre-OPEC levels in the favoured parts of the Middle East. The statement, however, that (p. 105) 'Enough oil to supply the world for several decades can be produced in the Middle East at \$0.05 to \$0.20 per barrel (1978 currency)' is hardly one of the 'facts all experts agree on'.

The subsequent discussion of population policies suffers from similar faults in presentation but, in this case, the open debate has been thinner despite the high public salience of the issues. Simon's discussion, although polemical, could be a helpful—if incomplete—contribution. His argument—considerably over-simplified here—says that, in the past, when problems of resource scarcity threatened, they were surmounted by improvements in technology; there is no reason for assuming this will not happen again in the future; for the key resource, energy, we have large resources and ultimately the nuclear fall-back position; and, overall, there are likely to be further reductions rather than increases in the costs of real resources, including food and energy. To this Simon links the population dimension: bright ideas in the past have more than offset the costs of population growth; the more people, the more bright ideas, so the larger the population (the ultimate resource) the better.

Leaving aside the question of whether bright ideas are linearly related to numbers in this way, two difficulties arise in studying the costs and benefits of population growth. First, a judgment is needed about short-term and long-term costs of population growth compared with the long-run benefits. Second, judgments are also needed about who carries the losses and receives the benefits, including whether the added external costs—pollution, crowding and other diseconomies of scale—are offset by external benefits—including non-appropriable economies of scale.

Normally both positive and negative effects exist and the theory, as Simon makes clear, does not indicate which will dominate. But then neither does the empirical evidence—or at least Simon's evidence seems frequently not to do so. Even if less conclusive than Simon argues,

however, his exposition is useful in that, while not convincing that the benefits are always, on balance, positive, it raises considerable doubt about popular arguments which often imply that they are normally negative.

Some of his evidence is idiosyncratic and anecdotal – a man's view that the birth of quintuplets to his grandson would cause economic problems does not constitute evidence that, before the event, there is sensitivity to economic factors in population decisions (p. 181). Again the empirical finding of a positive correlation between road density and population (unsurprising, I suspect, to most) does not necessarily support a claim that population growth 'clearly leads to an improved transportation system' (pp. 192-3).

For the protagonists in the debate about population and immigration levels in Australia, Simon's arguments are vulnerable to such criticisms. Yet to those objectively interested in the issues the book is worth reading for three reasons. First, it challenges successfully many arguments used uncritically by some of those supporting zero population growth or advocating vigorous population control in developing countries; one does not have to agree with Simon to accept the weakness of many of the arguments he criticises. Second, it is worth reading if it does no more than provide an understanding of the fallacy in the naive but popular scientific method that extrapolates (despite, as Huxley pointed out, the important difference that humans think) from insect or animal populations to human populations; it was, of course, the allowance for human reactions that led to the substantial revisions in Malthus's second edition of his *Essay*.

Third, we might still believe that the argument for or against population growth depends upon much more complex interactions of natural resource and social factors than Simon allows. We may not be prepared, therefore, to accept the value judgments he acknowledges nor the risks involved in the technological optimism underpinning his judgments – but after reading this book we may be more cautious in providing our supporting arguments.

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Future Dimensions of World Food and Population. By RICHARD G. WOODS (ed.). (Westview Press, Boulder, Colorado, 1981.) Pp. 412, ISBN 0 86531 160 9.

In 1979 and 1980, a series of papers were presented by a group of leading scientists and economists to the Congress of the U.S.A., outlining the problems associated with supplying the world with a satisfactory diet. These papers have now been brought together and published in this book.

The papers are grouped in sections. The relationship between food, food producing resources and population is discussed by Williams, Hopper and Brown. The section dealing with possible sources of food includes an excellent paper by Borlaug on plants and the possible genetic limits to their production. Animals as a source of protein, and the

efficiency with which they provide it as compared with plants, is dealt with by Pino and Martinez. Sindermann points out that only limited amounts of protein can be obtained from the sea.

Economic sections include a discussion of the prerequisites for agricultural development by Marei, Johnson and Mosher, followed by papers dealing with the importance of international trade by Goldberg and McDonald. The concluding chapters by Sosland, Castle and Muller deal with the effect on the U.S.A. of agricultural growth in the lesser developed countries.

So much has been written about the problem of world food and population that it is necessary to establish some criteria against which new work on this subject should be judged. The pertinent questions to ask are whether the work contributes new knowledge on the questions discussed and, more importantly, as the contributors are world experts in the field, the degree to which they agree and disagree as to the nature of the problem and how it might be solved.

All of the authors agree that the world is capable of achieving a satisfactory diet, but that this will be achieved only if populations are controlled and there is a rapid introduction of new agricultural technology into the developing countries. The problem of controlling populations is discussed only in general terms, but the question of agricultural development and the conditions needed to achieve it are discussed in detail.

There is general agreement on how agricultural development can be achieved and that success depends to a large extent on aid in the form of capital and research given by the developed countries. The need for the developed countries, particularly the U.S.A. to supply food, either as famine aid or as commercial imports, until production in the developing countries increases, is recognised by all. However, there is a wide divergence of opinion on the degree of government planning needed to achieve these and other objectives. Johnson and Williams consider a stable world price of grain and an international grain reserve to be essential prerequisites, while Sosland regards any interference with the grain market as detrimental to success. Similarly, Brown is convinced that agricultural production cannot be maintained without state land-use planning, as the free market will transfer good agricultural land to other uses. The need for land reform as the only means of distributing income arising from new techniques in the developing countries is considered essential by Marei, but unnecessary by Johnson.

Although the area of disagreement between the authors concerning the policies needed to overcome future food shortages in the developing countries is less than the area of agreement between them, they do indicate that further research is needed to solve some essential problems.

The conclusions drawn in this work, the evidence produced to support them and the differences of opinion by leading experts make this book essential reading for all those interested in the world food problem.

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Resource Economics: An Economic Approach to Natural Resource and Environmental Policy. By ALAN RANDALL. (Grid Publishing, Columbus, Ohio, 1981, distributed in Australia by John Wiley.) Pp. 415, ISBN 0 88244 211 2.

Natural resource economics has been an established branch of economics for at least 15 years. So why has it taken so long for a comprehensive, well organised text to appear? Natural resource economics is already supplied with half-a-dozen texts and at least a dozen books of readings. So why produce another one? Both of these opposing views are, of course, partly correct. *Resource Economics* is comprehensive, well organised and soundly analytical in the microeconomic tradition. But, in competition with at least 18 other books, is there a niche for Randall's text?

Resource Economics is about the role of economics in the analysis and choice of policies to manage natural resources and the environment. In his preface, Randall states that the field of resource economics would be unnecessary if all resource-related decisions were taken in a competitive market and the results of all such decisions were just. This statement indicates the efficiency-oriented and market-based nature of all the subsequent arguments.

The text is divided into seven logical parts and twenty-four convenient chapters. In the four chapters in Part I the issues, the scope and the role of economics are introduced. The second part is entitled, Allocation, Distribution and Economic Well-Being: Some Economic Theory for Now. The five chapters cover concepts of supply, demand, cost curves, Edgeworth boxes, social indifference maps, notions of Pareto safety and Randall's exposition and modification of the Coase Theorem. Part II occupies about one-quarter of the text. This is good because the author uses the remaining three-quarters to address policy and management problems. However, the very concise writing of Part II requires diligent reading.

Intertemporal problems of resource use are addressed in Part III (three chapters). While the Fisher/Hirschleifer model of consumption in two periods figures prominently—perhaps too prominently—the main practical issues are covered in a descriptive way in Chapter 11.

In Part IV (three chapters) Randall covers the institutional framework; in Part V (three chapters) he reviews the techniques of benefit-cost analysis and environmental impact assessment; in Part VI (six chapters) he addresses particular problem areas such as land-use policy and pollution, while Part VII is a one-chapter epilogue.

Even though the author tackles a very wide subject area, all the main economic arguments seem to be included and all the main institutions are discussed. Some potential readers may wish for less theory and others may think that an introduction of 40 pages is too long. The problem areas of Part VI are North American examples, and some non-Americans may regret the 98 pages devoted to them. Despite these disadvantages, the breadth of topics is good and the depth for each is just adequate.

The coverage is, therefore, comprehensive and the topics come in a logical, well-ordered sequence. In these respects, *Resource Economics* is superior to any alternative text.

Although the book is clearly aimed at the student market, rather than practitioners, public servants or the public, it may be more suitable for graduate than undergraduate students. As one example, Randall's general model for valuation of changes in output is not easy to grasp at first reading. The added benefits from mastering the model seem few and insufficient to justify the costs. As another, the description of the Coase Theorem, and Randall's developments of it, seem to have confused intuitive propositions.

The relatively long text facilitates the wide coverage but this is, of course, obtained at a cost. The book sold for \$39 in Australia in mid-1982. Such a price is not unreasonable for a book of this length but it is unreasonable relative to the overseas price. In mid-1982, the book was selling in the U.S.A. for \$23. The author will have some notion of the price elasticity of demand but the Australian distributor apparently does not. Unfortunately for the large number of potential customers (and the author), the unnecessarily high Australian price will lead to undesirably low sales.

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Consideration and Modelling of Risk in the Agribusiness Sector. By C.-HENNIG HANF and G. SCHIEFER (eds). (Kieler Wissenschaftsverlag Vauk, Kiel, 1981.) Pp. 194, ISBN 3 922553 00 1.

This book contains a selection of 23 papers presented at the second symposium of the European Association of Agricultural Economists in 1980. The subject of risk and decision modelling is divided into five sections: an overview of the literature about risk; some theoretical aspects of risk analysis; applications of risk analysis at the farm level; risk in government policy; and the treatment of risk in supply and demand analysis. With such a broad scope, the book provides both an introduction to the risk paradigm and to progress made in the area by European agricultural economists.

The first paper was the opening address to the symposium. An overview of risk analysis is provided with discussion and critical appraisal of current treatments of the model of the firm; Bayesian, lexicographic and focus-of-loss formulations of the utility function; and the role of the production function as a constraint in maximisation. It is argued that the current approach is limited: theoretically by the exogenous character of utility and production functions, and methodologically by the types of things that can be measured. An extension of the theory is proposed to include cross-temporal aspects of adjustment and a more hierarchical formulation of utility preferences. While these extensions provide greater plausibility for the theoretical basis of analysis, it would seem that many of the criticisms of conventional approaches have yet to be overcome.

While the author of the introductory paper searches for a new approach through alteration and extension of the assumptions in the conventional approach, the contributors to the second section of the book advocate more extreme reform. Some behavioural theories are examined and the Bayesian and hierarchical specifications of utility are rejected in

favour of concentration on agents' social needs and the notion of 'multi-dimensional' motivation. Replacement of the 'economic' man with the 'adaptive' man is advocated. However, having insisted on the relevance of para-psychological theories, no clues are provided for measurement, plausible elicitation of the utility function or a relevant analytical framework. In the same section, another author discusses risk parametrisation based on agents' debt structures and discusses reframing the Markowitz decision model in terms of debt management. However, it seems doubtful that risk and debt management are synonymous definitions of behaviour in the face of risk. Despite my reservations about such frontier probing, I feel this section of the book does provide a good discussion of conventional approaches in linear programming, game theory, quadratic programming and simulation.

The section of the book devoted to case studies has serious translation errors which, added to what at times is questionable or 'beside the point' analysis, detracts from the book as a whole. One author presents an econometric model of the relationship between changes in plantings of citrus varieties and the relative prices of varieties, posited as an approximation of risk, with a Durbin-Watson statistic of 3.49. Not surprisingly, the expected relationship for agents' risk attitudes toward frosts was not significant. A further contribution discussing approaches to analysis of risk in farm machinery investment is virtually unreadable due to poor translation, and lacks clarity due to confusion of problems of theory with problems of application. Some qualitative respite occurs in the case studies section in an analysis of seed potato plantings where Markowitz, focus-of-loss, game theory and normative programming results are compared and discussed.

The policy decision making section provides interesting reading. Decision problems of storage versus dumping in the Common Agricultural Policy are considered using comparative static analysis, and the need for a forecasting component in the decision model is highlighted. Also, several papers in the section are devoted to the concept of a 'government reaction function' and the role of unanticipated changes in government policy as a source of risk in the decision process. An attempt is made to incorporate policy influences endogenously in an econometric framework. I feel there are important lessons here for Australian economists. Finally, decision processes relating stockholding costs and reduced price variability in buffer stocks are considered by Parton for the wool case and by another author for the general case using a simulation framework. Both of these papers would be of interest to people working in the area.

The final section of the book considers the treatment of risk in supply and demand modelling. Von Bremen proposes an 'adjustment potential' measure, the difference between marginal input value and marginal value product, as a measure of risk and discusses the possibility of including 'adjustment potential' in modelling factor demand. The incorporation of measures of dispersion in supply response models as a way of including risk and the relevance of risk discounting and treatment of time in assessing welfare losses are considered in further papers.

In summary, the book provides a fair summary of the state of the art in risk and decision modelling. While some of the papers are poorly translated, and a few are strictly 'mickey mouse', others make good

reading. I recommend the book especially to those seeking an introductory overview of the subject.

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On Rational Grounds: Systems Analysis in Catchment Land Use Planning. By DAVID BENNETT and JOHN F. THOMAS (eds). (Elsevier, Amsterdam and New York, 1982.) Pp. 362, ISBN 0 444 42056 8.

This is really two books. One is a technical account of an application of linear programming to optimise the mixture of land uses in a single salinity-prone water catchment in the south-west of W.A. The objective function is framed in terms of net social benefit. The other book, equally useful in my view, is a lengthy discourse on the philosophies and merits of alternative land use planning and decision-making techniques. Both books are aimed mainly at decision makers and their advisers who have responsibilities for land use planning, particularly in relation to water supply.

The technical report is contained in Chapters 2, 3 and 4 and in 10 appendixes, which occupy 142 pages and contain all the details of data and modelling technology. In Chapter 2, the authors describe the catchment of the Murray River (6600 km², some 110 km south of Perth, and potentially a contributor to Perth's domestic water supply). The catchment already carries the main array of land uses, except for water impoundments.

Special emphasis is laid on the fact that expansion or contraction of some land uses will have a measurable effect on the water yield and quality, particularly salinity (sedimentation and turbidity are mentioned but not included as impacts). The study is largely about internalising these externalities within the framework of a cost-benefit analysis. A very large range of land-use options is canvassed within constraints set by land capability and by nominating flora and fauna reservations. The latter are nominated by scientists rather than by analysis of the costs and benefits of nature conservation. The opportunity costs or shadow prices of these constraints are calculated, but not used in the study.

The land uses (activities) considered include forestry, farming, agro-forestry, streamline plantations, bauxite mining, national parks and three water engineering options not yet extant: storages, desalination plants, and 'roaded catchments' (graded drains which increase run-off and storage by reducing infiltration and evaporation).

The catchment is divided into 43 land units (zones) and for each of the feasible land uses in each zone a budget of economic costs and benefits (estimated by the opportunity costs of resources and producers' and consumers' surpluses) was specified. On the assumption that net benefits are a linear function of the area devoted to a given land use, and that costs and prices remain constant, a linear programming formulation is used to determine the optimal mix of land uses that will apply for a given set of conditions and assumptions. As the conditions and assumptions are altered, a new optimal mix of land uses is calculated and recorded, and the sensitivity to the values of input variables (for example, discount rate, consumers' surplus estimates, and the like) is tested.

The appendixes contain an algebraic statement of the linear program-

ming formulation, and the reasoning, assumptions and data used to specify the input variables.

Whilst there is little that is new or original in the linear programming application, or in the approaches to modelling the production functions and valuing the inputs and outputs, the study is the first published, to my knowledge, which provides a comprehensive application of these methods to a real and topical Australian land-use problem. Published studies about other projects—for example, on the south coast of N.S.W.—have either lacked the detail or have displayed the usual imbalance between excessive depth of bio-physical research and data, and lamentable superficiality of information on the socio-economic significance of the bio-physical results.

The authors are careful to avoid creating the expectation that theirs is the final answer: the shortcomings of their study are readily acknowledged. The data and models are only the most appropriate or available at the time, and are certainly not presented as being immutable. Rather, the intention throughout is to show that the framework—the ‘rational paradigm’—is a step forward in land-use planning in Australia.

The ‘other’ book—on the meaning and relevance of the rational paradigm in planning—is contained in Chapters 1 and 5. It is a frank and fascinating account of how the several scientists in the study team evolved in their attitudes over the course of the study. Having started with only a vague awareness that the choice of paradigm was the crucial, and as then unanalysed decision, they went on to consider a complete range of alternative approaches and philosophies, both intellectually and pragmatically, having regard for the professional, social and political environment within which land-use planners and analysts operate. Along the way, they identified some severe problems for would-be rational planners and analysts. In the end, they continued their proclivity as scientists to the rational paradigm: first define the problem, then set alternative solutions, and finally specify and rationalise which solution is best. Would that these two chapters could be read and digested by the thousands of Australians who have responsibilities for land-use determination in this country.

Economist readers will want to know that questions of equity, uncertainty and ‘second best’ are simplified to the extreme or assumed away. The linearity assumptions of the linear programming model are acknowledged as simplistic to the point of unrealism, notably for the salinity response to land clearing (though suggestions for allowing for nonlinear responses are made). Still, these simplifications are an operational necessity in such a treatment of a catchment planning problem, and not too much should be made of them.

The book as a whole will be most useful for students, teachers, practitioners and observers of land-use planning and management. For roughly \$90, the buyer will receive:

- (a) a first rate technical summary, with comprehensive references, of the pressing land-use issues in W.A.;
- (b) a lift-out 1:150 000 coloured map of the land forms and soils of the Murray catchment;
- (c) a set of results indicating optimal land-use mixes under a range of specified assumptions; and
- (d) an outstanding account of the philosophy of land-use planning.

The book is well bound, but the text is printed from typing rather than type-set, which cheapens the appearance and this is a pity in a highly-priced book. There are 20 clear black and white plates. The diagrams are clear but not exciting, and some of the more innovative formats are confusing.

Typographic errors were insufficient to be annoying. I noted that some of the references are now contained in more accessible publications than those cited in the book. Some of the algebraic notations in the main text, especially in Chapter 3, were unnecessarily complex, though on the whole, they added precision to the verbal propositions.

In all, there were 12 contributing authors, including the editors, some of them nationally eminent scientists. The union of their energies in such a comprehensive and fruitful way in this work is one of its great achievements. One wonders, though, when further steps in such worthwhile interdisciplinary work will be forthcoming now that the CSIRO Division of Land Resources Management has been disbanded.

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