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BOOK REVIEWS

The Economics of Bushfires: the South Australian Experience. By DEREK T. HEALEY, FRANK G. JARRETT, and JENNIFER M. MCKAY (eds.). (Oxford University Press, Melbourne, 1985.) Pp 152, ISBN 0 19 554669 5.

Ash Wednesday 1983 was another blunt reminder that bushfires in Australia remain untamed, unpredictable, and capable of inflicting great loss of life and colossal damage. This time, at least, the economic lessons have not passed unnoticed. This book has been written by eight economists from the Centre for South Australian Economic Studies. Each author explores some aspect of the cost of bushfires, the efficiency with which fire control funds are spent, or the distribution of risk bearing and fire loss in the community.

Bushfires are frequently summarised in terms of the financial loss caused. Invariably, however, this figure underestimates the total cost. In the first chapter the author uses an input-output table for South Australia to determine some of the 'flow-on' costs to other sectors in the community. Several unavoidable assumptions are entailed—but the results are a dramatic illustration of what the economic impacts of bushfires really are.

A substantial portion of the cost of bushfires is borne by the public sector. The taxation and cost-sharing arrangements between the three levels of government—local, state, and Commonwealth—are examined in Chapter 2. Assigning responsibilities is acknowledged as being difficult, but the current National Disaster Relief Arrangements agreement is considered to provide a satisfactory balance.

Most Australians live in cities where they are generally detached from bushfires and the bushfire problem (though residents of Canberra received an unpleasant shock last summer!). Periodically, however, they become directly involved by contributing generously to bushfire relief appeals. Probing discussions in the book are therefore an important objective review of the sources and expenditure of large sums of public and private charity money. A substantial part of the cost of donations is found to be 'passed on' to the government, through tax deductions. A consequence identified by the author is that high-income earners are well placed to dictate government support of bushfire relief and other charities. Questions of equity in the distribution of relief between victims, and the impact of bushfire appeals on the revenue of other charities, are also explored.

Insurance companies (with one exception) treat all bushfire risks as being equal. This situation is rightfully criticised in Chapter 4 of the book. The authors present a balanced summary of insurance and risk bearing by individuals. Their discussion notes that the loss of houses during a bushfire, and hence the cost to the community, could be reduced if householders adopted standard methods for protecting their houses against bushfires. The authors advocate an insurance-based

incentive to achieve this, but are mindful of one of the major impediments—a dearth of detailed knowledge of the risks.

The adoption of house protection measures in the Adelaide Hills is investigated in a later chapter. The results confirm the current belief that householders need constant reminding of the ever-present danger of bushfires. When concluding, the author suggests that householders should be encouraged to adopt protection measures which are permanent. This is sensible, but care must be taken to ensure that temporary measures do not come to be regarded as being inferior. Some temporary measures, such as the clearing of fuels from around houses, are vitally important.

Volunteer fire fighting agencies are the mainstay of rural fire control operations in all Australian states. Appropriately, therefore, two chapters in the book are devoted to a review of the Country Fire Services of South Australia.

By studying fire brigade formation and volunteer recruitment in the Adelaide Hills, the authors identify the key deficiencies in the Country Fire Services. They consider that 'volunteerism' itself is the cause of many of these deficiencies. But while there may be some truth in this, the brunt of the blame may be more appropriately levelled at the way in which volunteerism is administered, and in particular at the Act under which the Country Fire Services operate.

The payoffs of bushfire suppression and prevention accrue in terms of losses *not* sustained, and are therefore difficult to measure. Even so, it is disappointing that more attention in the book has not been paid to a crucial economic issue, the optimum level of state preparedness for bushfires.

Because of the long growth time of trees, assessing the costs of bushfires is a complex process. In the final chapter the pine production process in South Australia is explained, and the impacts thereon of the Ash Wednesday bushfires are evaluated. The discussion highlights the disruption to plantations and forest industries caused by major bushfires, and is a valuable record of the 1983 experiences. The author comments that, based on the number of trees killed and the salvage value of the forest, the long rotation policy of the Woods and Forests Department 'minimises the expected losses from major fire'. While this is logical for a single fire, determining the optimum rotation length of a plantation with fires recurring at irregular intervals is likely to be a more complex exercise in probabilities.

Readers of this compact book will not require a detailed knowledge of economics. Most of the analyses, including those using input-output tables, are presented in simple language. Some insight into plantation forestry would, however, be an advantage for readers of the chapter concerning forestry losses.

In summary, *The Economics of Bushfires: the South Australian Experience* is a much needed attempt to establish what the real costs of bushfires are, and to determine who really pays the bills. It will be of interest in all levels of government, the state fire, forest, planning and agricultural departments, and the insurance industry. Some chapters are also worthwhile reading for residents of bushfire prone areas.

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Agriculture, the Countryside and Land Use: An Economic Critique. By J. K. BOWERS and PAUL CHESHIRE. (Methuen, London, 1983.) Pp. 170, ISBN 0 416 31830 4.

Masked by a rather austere title, this small paperback written for a general audience is one of the best polemical pieces on agricultural policy which I have read. In their Preface, the authors state that the book 'is intended as a work of political economy; a book which combines academic research with persuasion'. In my view, they have succeeded admirably, producing a book which is at once heartfelt, informative, readable, and analytical, a book which should hold the interest of the lay reader without compromising the economic arguments which underpin the authors' case. I commend it to the profession on these grounds.

The subject of the book is the connection between the decline in the recreational, scientific, and historical value of the British countryside and the economic incentives created by British (and recently, European) agricultural policies since World War II. Briefly, not only have farmers not been paid to produce unpriced rural amenities, historically joint products with foodstuffs in Britain, under postwar agricultural protection policies, and especially since the adoption of the Common Agricultural Policy, farmers have had strong financial incentives to destroy rural amenities such as hedgerows, woodlands, ponds, and wetlands, incentives which would have been greatly reduced in the absence of farm subsidies. Bowers and Cheshire are concerned to alert British consumers and taxpayers to the economic absurdity of policies which force them to subsidise not only the production of extra foodstuffs which nobody wants, but also the destruction of countryside features which they increasingly hold dear:

Conservationists are often told they should face the economic facts of life. Part of the purpose of this book is to show that it is rather farmers who should face economic facts. At present, . . . they operate in a hothouse world constructed by policymakers where costs and prices bear no relation either to true resource costs or community preferences. The private financial facts that this world has created for farmers—their costs of production and farm gate prices—are foisted on a long-suffering public. There is a powerful case for the community to shape these facts so that it pays farmers not only to produce food but to produce the sort of countryside that the community enjoys (p. 13).

The book is divided into eight chapters. Chapter 1, misleadingly titled Introduction, provides an excellent, concise summary of the book as a whole. After brief documentation of the increasing demand for recreational use of the countryside at the beginning of Chapter 2, the remainder of Chapters 2 and 3 is devoted to description of the adverse effects of modern British agriculture on the recreational, scientific, and historical value of the countryside. In Chapter 2, the authors discuss the broad picture, in terms of declines in footpaths, hedgerows, marshes, plant and animal species, and archaeological sites. The changes which occurred between 1947 and 1981 in a 2,000 hectare area of West Berkshire are described in detail in Chapter 3.

In Chapters 4 to 7, the focus shifts to postwar agricultural policies and the Common Agricultural Policy. Chapter 4 contains a good short history of the development of agricultural protection policies from World War I to the 1970s, and the consequent enrichment of Britain's farmers. Real land prices rose by a factor of 3.5 between 1945–47 and 1977–79 and farmers, a relatively poor group in the 1930s, had become one of the richest occupational groups in Britain by the mid-1970s. In Chapter 5, Bowers and Cheshire summarise and criticise the current regime of agricultural support, and provide estimates of the value of protection to British agriculture. Chapters 6 and 7 contain some of the arguments employed in recent attempts to justify a level of protection to agriculture above that enjoyed by any of Britain's manufacturing industries. Bowers and Cheshire debunk the purported efficiency of British agriculture, pointing out that in its protected state it is too large by world standards, and that its over-expansion has reduced Britain's real output by diverting investment funds and entrepreneurial and managerial talent away from other, more internationally competitive, industries. They also carefully explain why agricultural expansion is not a sensible response to deficits in the balance of payments or in Britain's EEC Budget.

The final chapter is devoted to the reform of agricultural policy, with particular emphasis on the provision of positive incentives for the production of rural amenity. Bowers and Cheshire reject the option of extending planning controls to protect the countryside, on the grounds of costs and policing problems, since controls ignore the economic incentives for destruction of rural amenities. They advocate a reduction in agricultural protection, income supplements for poor farmers, and the introduction of amenity subsidies to reward farmers for adopting practices which create an accessible and attractive countryside. They point out that the required level of amenity subsidies is a direct function of the level of price support provided; if farm products and inputs were valued at world prices, the amounts required to compensate farmers for preserving the countryside would be greatly reduced.

What the preceding summary fails to convey is, to me, a major virtue of the book—the feeling and style with which it is written. The authors state in the Preface that the book was fifteen years in gestation. This appears to have had the benefit of honing their presentation for a lay audience. The result is a book which is concise, which exhibits feeling as well as economic analysis, where the analysis is leavened with the occasional entertaining turn of phrase, and which takes care to arouse the reader's indignation with the particular facts of the despoilation of the countryside before engaging him or her in the intricacies of the Common Agricultural Policy.

Inevitably, in a book of only one hundred and sixty pages dealing with complex economic phenomena, the analysis has some limitations. First, for the benefit of the lay reader, the authors could emphasise more strongly that environmental degradation is not a necessary concomitant of agricultural protection, but only of particular protection policies, as their detailed arguments make clear. In the same vein, it is surprising to me that Bowers and Cheshire do not concede any situations where the effect of Common Agricultural Policy measures has been to increase rural amenity. Given the likely complexity of relationships between

some farm subsidies and environmental outcomes, more precise specifications of the intervening technical and behavioural relationships would have reassured readers who suspect overkill.

In their final chapter on policy options, Bowers and Cheshire make out a strong economic case for reduced protection and amenity subsidies, but, given the failure to date of economists, the countryside lobby and consumers to prevail against concentrated farming and agricultural supply interests, they might usefully have devoted more space to the political economy of agricultural regulation in both Britain and the EEC. In the circumstances, it is hard to assess the short-term feasibility of their recommendations.

While on the subject of political economy, the authors' Preface contains a statement which might reasonably be interpreted as indicating 'capture' of much of the British agricultural economics profession by the agricultural lobby:

Finally it should be made clear that neither author has any connection with departments of agriculture or agricultural economics in our respective universities (p. x).

One warning concerning the authors' terminology. In discussing their estimates of the value of agricultural protection in Chapter 5, the authors use the term 'effective protection'. However, the estimates which they discuss are all based on gross values of production, rather than value added.

Summing up, those members of the profession interested in the relationships between agricultural and conservation policies, those interested in a short readable account of British agricultural policies, and, especially, those interested in the polemics of agricultural policy would be well advised to buy or borrow this book.

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Agriculture and Economic Development. By SUBRATA GHATAK and KEN INGERSENT. (Wheatsheaf, Brighton, 1984.) Pp. 380, ISBN 0 7108 0142 4.

Planning for Agricultural Development. By J. A. MOLLETT. (Croom Helm, London, 1984.) Pp. 335, ISBN 0 7099 1784 8.

In his Preface to Mollett's book, Hans Singer points out that 'There is a new consensus in the air, i.e. that both developing countries in their domestic policies and the international community in its global actions must give higher priority to agriculture'. He then argues that this new consensus has provided:

... one area in which today the 'conservatives' who believe in agriculture as a comparative advantage of developing countries and a necessary foundation for industrialisation can fully agree with the 'radicals' of the 'dependency school' who advocate avoidance of undue reliance on foreign supplies and proclaim the need for food security.

Neither of the books under review can fairly be categorised as fully belonging to either the 'conservative' or the 'radical' camp, but in part they reflect their different points of view.

The book by Ghatak and Ingersent is intended 'as the main text for a full-length course in agricultural development economics' at second-year or third-year level (p. xi). Much of their analysis is based on a traditional two-sector model in which, following Kuznets, agriculture's role in economic development is to contribute to overall economic growth by providing raw materials and food, a home market, capital for the non-agricultural sector and also a major source for the earning of overseas exchange.

Ghatak and Ingersent emphasise the importance of increasing aggregate production. Poverty is seen as bad not because it is evil in itself, but because it prevents growth. So, according to them:

The relative poverty of peasant farmers explains their aversion to risk and their unwillingness or inability to innovate and invest . . . But there are other *side effects*. Extreme poverty can cause malnutrition and ill-health. Moreover, the consequences of poverty have feedback effects upon labour productivity (p. 17, my emphasis).

This hard-nosed attitude is, fortunately, not maintained throughout the book and when discussing planning strategies the authors concede that the indirect method by which the benefits of growth 'trickle-down' through the market may be 'too uncertain and too slow, and there may be a case for making the redistribution of income a primary objective in order to attack rural poverty more directly and more rapidly' (p. 341). The authors repeatedly point out where, if not why, the real world situation falls short of neo-classical standards and they sometimes seem to suggest that it would be desirable if the real world could be made to conform to them. However, Ghatak and Ingersent also recognise that government intervention to overcome market imperfections is fraught with the possibility of considerable economic and social cost.

Students who have completed a standard first-year course in micro-economics will not find *Agriculture and Economic Development* difficult. Although most of the authors' argument is verbal, there are some diagrams and a little algebra. As a textbook, it adequately illustrates the use, but fails to emphasise the limitations of the tools of neo-classical economics.

Mollett's book requires a similar level of background economics to that required for the former book. Instead of being a textbook with a strong emphasis on theory, *Planning for Agricultural Development* is more a practical handbook derived from a larger reference work prepared for the Agency for International Development. The sixteen chapters may be divided into three sections: the first five chapters are about the relationship between agricultural and overall planning; the next nine are about various details of plan preparation and formulation; and in the last two Mollett discusses the administrative aspects of agricultural planning.

Mollett agrees with Ghatak and Ingersent on the importance of agricultural development, but for different reasons. The latter authors emphasise its role in achieving growth, but Mollett argues that agricultural development must be seen as being subservient to, though

necessary for, rural development. That, according to Mollett, should be aimed at achieving 'the improvement of the material and social welfare of the rural population, always including poor farmers, and sometimes, landless farm workers and others in rural areas' (pp. 31-2). Mollett recognises that at times the goals of equity and efficiency will conflict, but insists that economic planners must always 'realise that economic objectives should conform to social and political realities, rather than the other way round'. He goes on to point out that 'the main purpose of planning is not to maximise cost-effectiveness but to achieve social and political objectives at the lowest possible cost' (p. 43).

The different attitudes of the authors of these books toward development cause them to approach various problems in very different ways. For example, Ghatak and Ingersent discuss rural finance primarily from a theoretical point of view, while Mollett approaches it empirically. Even so, their policy conclusions are similar. Both agree that loans for consumption may at times be more important for production than are those given for investment, but whereas Ghatak and Ingersent do not differentiate between different forms of investment, Mollett suggests that credit 'is often unnecessary for modern inputs because they are self-financing' (p. 166). Both agree that subsidised levels of interest are of little, if any, value to owners of small farms. They also agree that land reform might often be desirable, but whereas Ghatak and Ingersent see it as a means of improving the access of small land-holders to credit and therefore of achieving growth (p. 236), Mollett sees it more as an end in itself:

If tenure and prices are inadequate, then credit is unlikely to be sufficient to generate changes in output. For the poorest farmers, their greatest need is more income rather than credit (p. 166).

Another example of the different approaches adopted by the authors of the two books is provided by their sections on project appraisal. Ghatak and Ingersent discuss in some detail the theoretical aspects of linear programming and cost-benefit analysis, but Mollett, while not denying the value of such techniques, concludes that 'regardless of the quantity of data assembled, its accuracy and relevance, the whole process of project appraisal remains more of an art than a science' (p. 206).

Mollett's book has been produced by the 'photo-ready' process and Ghatak's and Ingersent's is typeset. The former has very few technical faults, but unfortunately the latter contains more than the usual number of 'typos'. The draughtsmanship of some of its diagrams is shoddy and one is wrong (9.2). However, none of these defects prevents its argument being readily understood.

Each of the books has much to commend it. While Mollett's is aimed at a more practical audience and does not claim to be a textbook, it would nevertheless be of much use in a course on agricultural development economics. Ghatak and Ingersent's book is intended for that use, but it could well be more widely employed. Each of the books, of course, has its deficiencies and I suggest that they would be best used in association with each other.

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Crisis in Soviet Agriculture. By STEFAN HEDLUND. (Croom Helm, Beckenham, Kent, 1984.) Pp. 228, ISBN 0 312 17401 2.

This is a rather sad book on a gloomy subject. It is sad not because of any lack of scholarship on the part of the author, but because Hedlund's concise analysis reveals that there is unlikely to be any way out of the morass for the agricultural sector within the Soviet system. It is gloomy because the 'crisis' of the early 1980s is, in principle, so similar to the long string of 'crises' which stretch far back into Russian history. Indeed, one must ask whether crisis is the right word. In the last years of Brezhnev and during the Andropov-Chernenko 'interregnum', harvests have failed consistently making large imports of grain necessary. Meat supply has faltered, and the imbalance between grain and meat supply is almost as great as under Khrushchev. Formal rationing of major items has become necessary, and labour productivity has fallen despite the heavy physical investment of the recent past. Hedlund concludes that '[t]he chain is been subjected to a strain that it can hardly be able to take for much longer' (p. 208). These words have a familiar ring to students of Soviet agriculture. Perhaps the crisis should be seen as a state of constant tension and failure to meet demand rather than as a situation likely to bring about rapid or unpredictable change.

Hedlund explains the 'crisis' or constant tension historically. The grain procurement method initiated under war communism and refined by Stalin in the 1920s and during the collectivisation drives of the early 1930s involved a major element of expropriation. Prices were set well below free market rates to help generate the surplus required for rapid industrialisation and urbanisation. As a peasant 'strike' was usually incipient, procurement practice was surrounded by violence, merchants outlawed, and the price structure determined centrally and, needless to say, inflexibly. In Hedlund's view *kolkhoz* production has continued to be dominated (and distorted) by the procurement system of the Stalinist era, despite the reforms of Khrushchev and Brezhnev. Procurement prices are too low and inflexible leading to excess production of grain and insufficient supply of protein foods. The productive workers gravitate to the cities leaving the more traditional *kolkhozniks* behind. The incentive structure encourages cultivation of the private plots but these plots are too small to achieve economies of scale. Storage of any surplus is difficult because of the party's hostility towards the construction of storage facilities; historically storage has been equated with illegal withholding of grain. Marketing methods are elementary because of the traditional animosity towards middlemen. Even more important, the incentive structure militates against work on the *kolkhoz*. The fixed-price piece rate method of payment for collective work encourages time-serving, wasteful use of capital equipment, and disinterest in efficiency. All this is familiar and is standard western criticism of the system.

The strength of this short book is that it provides a crisp overview of a number of central features of Soviet agriculture, and a summary of the situation at the time of Andropov's brief tenure as secretary. For the historical sections, heavy reliance is placed on authorities such as Lewin, Nove and Volin. The focus, however, is narrowly on the *kolkhoz*. The *sovkhoz* or state farm receives scant attention, yet the state

farm sector now supplies more than half the agricultural production and continues to grow rapidly in absolute and relative importance. Over time it is possible that the *kolkhoz* problem might decline to relative unimportance, although this does not diminish the force of Hedlund's critique.

Are prospects as bleak as the author suggests? They probably are despite the exaggerated emphasis on the *kolkhoz*. Nothing can be done about the climate which ensures one harvest failure out of three. Much can be done about the incentive structure, but all except the most gradual and muted reforms pose a threat to the regime. The significance of the recent food riots in Poland will not have been lost on the Politburo: radical change in the level of prices seems out of the question. Yet the failure to meet basic demands also poses a threat, at least in the long term. Hedlund is probably correct in his assessment that risk aversion will win the day—only the most gradual reforms will be attempted and the state of chronic tension is likely to persist.

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Economic Intervention and Regulation in Canadian Agriculture. By J. D. FORBES, R. D. HUGHES and T. K. WARLEY. (Ministry of Supply and Services Canada, Ottawa, 1982.) Pp. 139, ISBN 0 660 11068 7.

Written with verve and style, this report provokes a fundamental questioning of the basic philosophies of the regulation of agriculture. Although the details apply to Canada, the issues raised are more general. In conclusion, the authors state: 'We are bound to say that we view the drift from competitive systems, via creeping syndicalism, towards public regulation with deep foreboding'. Some of the short-term consequences as well as the long-term consequences of the pattern of regulation adopted in Canada are portrayed. Due recognition is also given to the fact that regulation is usually used to solve real problems that industries face. The authors' criticism of current regulatory approaches centres on the way regulatory powers are used rather than the existence of such powers. The report provides a set of constructive criticisms rather than portraying a blind faith in the ideal of a perfectly competitive market.

Three objectives were set for the study:

- to investigate the economic impact of government regulation in agriculture, with particular reference to the role of marketing boards;
- to identify alternative policies and programs that could achieve the desired agricultural policy ends; and
- to recommend, where appropriate, changes to current regulatory policies and programs in agriculture that would better serve the interests of the Canadian food system and the nation overall (p. xii).

These are ambitious objectives given the complexity and vast array of interest groups involved in Canadian agriculture. Through the use of nine commissioned research papers the first objective was met in an

approximate fashion within the limitations of the techniques available to economists to measure such things and the limited data available. There may be argument over the precise values of the direct and indirect transfers involved but the authors have shown them to be large. In the 1970–78 period, the direct federal and provincial payments for commodity programs and input and marketing subsidies averaged 24 per cent of the total realised net income of Canadian farmers. Some of the indirect transfers were calculated for a number of industries.

Throughout the report, policy alternatives are considered. For example, six alternatives are considered for the dairy industry along with their income transfer effects and their welfare costs. However, the general thrust of the recommendations is toward greater use of the price mechanism in regulatory devices rather than quantitative or physical restrictions. Illustrative of this is the authors' support for the 'teeter totter' principle under which administered price schemes would have price levels with at least some form of inverse relationship to quota values. The rise in quota values reported for commodities such as broiler chickens, turkeys, eggs, and fluid milk since the 1970s has been very large.

The report appears to have arisen out of the concerns felt by many Canadians that the transfers to agriculture have been excessive. Other concerns reflected in the report are that with existing procedures, rents created through supply control (as reflected in quota values) largely benefit the producers to whom the quotas were first granted and represent a cost on the next generation of producers. Further, the market power of marketing boards has been used in ways not in the public interest nor in the long-run interest of producers, technological change and entrepreneurial initiatives are stifled, there is an erosion of competitiveness in export and import markets and there has been a fragmentation of the country into a set of provincial submarkets.

Part I of the report provides the background required to understand the problems facing Canadian agriculture together with a useful summary of the reasons for intervention and regulation in a competitive environment. However, for the non-Canadian, very little detail is given of the actual policies relating to each of the agricultural industries. Canada has approximately 100 marketing boards ranging from promotional and development boards through to supply management boards. Investigation of the economic impact of these boards was a major goal of the study. The impact of various boards is covered in Part II of the report as a series of case studies of selected industries.

The review of objectives for the food system in Canada should interest Australian agricultural policy makers. The authors comment that 'one of the more constructive outcomes of the 1970s food policy debate and the mounting demands for "accountability" was that the federal government was moved to spell out the objectives of its policies for the food system' (p. 17). They also regard the emergence of 'food policy' as a 'holistic conceptual framework' as one of the most encouraging developments. The authors are worried, however, by the declining productivity of capital and poor productivity increases for resources in general. They are suspicious that this has been brought about by the effects of the ever-increasing regulation of Canadian agriculture.

Farmers' incomes are reviewed by considering the issues of parity, adequacy and instability. The authors' judgment, based on a paucity of information, is that commercial farmers do earn parity returns on the resources they use in agriculture, that incomes are on a par with those of Canadians earning income from other occupations and that farm incomes are clearly less stable than those of non-farm unincorporated self-employed businesses. In the last two chapters of Part I, the various policies used to transfer income to agriculture and to provide for stabilisation are examined.

In Part III of the report, regulation of the poultry sector, the dairy sector, the processed fruit and vegetable sector, the grains sector and the red meats sector is examined. The problems of various industries in each sector, the policy responses that have taken place, the results of such policies and an examination of alternative policies or reforms are outlined in detail. This section has extensive detail on the success or otherwise of the different regulatory measures and the major costs and benefits of these regulations are identified. Much of this part of the report is specific to Canada.

Supply management, cost of production pricing and suggested reforms for marketing boards are dealt with in Part IV of the report. Reforming a large and complex regulatory system is a difficult task and the authors argue that 'price and income support and stabilisation-oriented commodity policies, marketing boards, supply management programs and formula pricing techniques can all find an enduring place in Canadian farm and food policy' (p. 117), provided their use is changed so that there is less economic waste, less concern over income transfers, fewer rigidities and a reduction in the adverse long-term consequences. Eight major reforms are suggested for the cost-of-production pricing policies. A number of these reforms relate to improving information flows, monitoring and policing. The key recommendation is to ensure that no element of the value of quotas be included in the cost-of-production formulae, no matter how subtle (for example, the interest charged on money borrowed to purchase quota). Ten reforms are suggested for the operation of marketing boards. Many of these relate to representation on boards, the accountability of boards, appeals procedures and information to be provided by the boards so as to improve public awareness and debate of the procedures used.

Some important issues in the regulation of Canadian agriculture are treated cursorily. One such is the effect of regulations in one industry on other industries. The grains sector is a prime case, although this is recognised by the authors. Some of the consequences of regulation in agriculture on other sectors of the economy are not made so apparent, particularly the food processing, distributing and retailing sector of the economy or the inputs industries. The vexed question of the development of an export orientation for Canadian agriculture within the context of significant levels of regulation is also treated with a light touch. Putting the domestic house in order by attenuating the worst excesses of the regulatory bodies may provide some improvement in the ability to compete on export markets. However, export competitiveness depends not only on the efficiency of farmers but also on the marketing systems (regulated or not) and the systems for processing and delivering goods to export markets.

This report should prove most useful to Australian policy makers and lobbyists who wish to be reminded in a systematic and logical way of some of the consequences of their regulations or requests for regulations. It is a study which clearly provides the information needed to allow learning from the 'mistakes' of others. Students of agricultural policy will find many gems of economic argument within its covers and should enjoy the style with which they are presented.

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Fisheries Management—Theoretical Developments and Contemporary Applications. By GEOFFREY WAUGH. (Westview Press, Boulder, Colorado, 1984.) Pp. 247, ISBN 0 86531 983 9.

Fisheries Management is a useful introduction to bio-economic modelling of fisheries which will suit anyone with a grounding in micro-economics who wishes to learn the peculiarities of the fisheries branch of this discipline. The title claims a very broad ambit, and after examining the contents could give the reader the impression that 'management' of fisheries consists of formulating bio-economic models and getting administrators, politicians and fishermen to agree with them. The role of biologists is reduced to that of providing basic data for input into economists' models, ignoring their direct input into management decisions. Little mention is made of the biologist's role in providing information on such matters as the effects of differing methods of fishing or of the interactions between fisheries. Bio-economic models cannot include all our knowledge about the ecology of fisheries, necessitating interaction between all specialists involved as a management plan is developed. The political bargaining with industry comes across as a nuisance best abstracted from consideration, although a chapter discussing various forms of regulation from the point of view of their economic efficiency does consider enforcement problems. The book is mainly about modelling and its mistitling is a clue to the attitude evident throughout: a somewhat blinkered economic view of fisheries management. For example, in discussing the objectives of management, maximum sustainable yield, maximum economic yield and optimum sustainable yield are considered, with economic efficiency winning out. (Optimal sustainable yield includes non-economic factors and social objectives.) Absent from consideration within the economic efficiency criterion are the intangibles which affect decisions, such as the value placed on the continuing existence of stable fishing communities and the quality of life within them. The author's 'economism' is perhaps related to his opinion of the New South Wales state fishery service, which is accused of the complementary vice: wilfully ignoring economic advice. These complaints are out of place in a text, giving it a parochial taint.

Fisheries management bodies have been and still are, to a decreasing extent, dominated by biologists, in much the same way as the electricity utilities were by engineers, and with similarly harmful consequences for economically efficient resource allocation. This reviewer feels that the results might be as bad if economists following the author's implied

philosophy of management obtained a comparable hegemony and went about restructuring fisheries in single minded pursuit of their own shibboleths.

The book is lucidly organised, with a chapter introducing fisheries economics followed by detailed rehearsal of models found in the literature. These are divided into 'surplus yield' models and age structured or 'dynamic pool' models. In each of these two chapters the earliest models (Schaefer, Beverton-Holt) are developed into their contemporary, capital theoretic counterparts. The Deriso model, which is proving popular as a bridge between the two types came on the scene too late to be included. The author has since updated one of the studies in the book using a Deriso model (Waugh and Hamer n.d.). The mathematical presentation is adequately explained and of course there are many of the familiar multi-sector graphs economists love to draw.

Within the exposition of surplus yield models, it is claimed that the concept of depensation 'can be used to explain the sudden collapse of some fisheries' (p. 47). Actually it cannot do any such thing—it can only be an hypothesis consistent with this outcome. The need for biological evidence is neglected, and yet without it the predictions of depensation models, or indeed of any other models, are extrapolations. This unjustified faith placed in predictions based on hypothetical relations of causality is a dangerous weakness, and the need for caution in applying models' predictions should be stressed. Garbage in, garbage out should be the modeller's catch phrase, as a model is not a substitute for reality, but a means of calculating the effects of actions, given certain assumptions. When policy prescriptions are to be derived the assumptions made implicitly in the choice of a model can be more important than the biological constants.

The historical foundations of fisheries economics are expounded with many useful references, helping to give perspective on the development of the subject, which is still a very young science. Many examples of experience in different fisheries are quoted to illustrate theoretical points.

The use of footnotes is well considered as side issues are treated in depth without encumbering the main text, but I find the placing of footnotes at the end of each chapter annoying as they are harder to locate there than at the end of the book, or at the bottom of each page. A glossary of the fisheries terms used would have been useful.

There are two detailed empirical studies. The first uses an interesting dynamic programming model which incorporates stochastic variability to examine the prawn fishery off the northern coast of Australia. This is a useful contrast to the more conventional equilibrium models covered in the theoretical chapters and might prove useful for other high fecundity, high mortality species such as scallops.

The other study is of the New South Wales abalone fishery, where a Beverton-Holt model is used. For this approach, determination of the optimum exploitation requires the manager to know the cost of effort as well as the price per unit catch and all biological parameters, and to then stage manage the show to ensure the correct amount of effort is applied. In the present case, effort is shown to be grossly oversupplied, and the economic benefits of better management are examined. In setting a fair

cost allocation for labour the divers' award rate is used, ignoring the arguable possibility that the large number of operators displaced could not be absorbed by the labour market demand for divers. It is pointed out that existing fishermen could be given a golden handshake from the rent generated if numbers were reduced. One problem not addressed is the time lag between effort reduction and rental generation. The model does not show the speed of the stock's recovery, and so the investment made in buying out fishermen is of uncertain duration. Who is in a position to make the investment, and what rate of return would be realised? Without answers to these questions no decision can be made on the optimality of reducing the size of the fleet. The conclusion that there are too many operators is further weakened by the fact that some important biological parameters are guesstimates, and no examination is made of the assumptions contained in the use of the particular model chosen, Beverton-Holt. An optimum may appear relatively insensitive to particular parameters and thus restore some confidence, but a different biological model can produce drastically changed optima (see, for example, Sturgess, Dow and Belin 1982). This is because optima are calculated as marginal equalities which are sensitive to the functional form of the model.

Despite the above reservations, I believe this book which should have been titled 'Fisheries Models', is a very good introduction to fisheries bio-economic modelling and its uses.

N. G. Dow

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