

Book reviews

Environmental Economics: A Critical Overview, by Alan Gilpin. Published by John Wiley and Sons, Chichester, England, 2000, pp. xvi + 334, ISBN 0 471 98558 9 (hdbk), 0 471 98559 7 (pbk), \$169.95 (hdbk), \$61.95 (pbk).

Economists will find the title of this book misleading, in two respects. First, the subject matter ranges beyond environmental economics. Second, rather than systematically reviewing the advantages and limitations of economics applied to environmental problems, the late Alan Gilpin, author of numerous previous books on environmental and planning issues, confines himself to selective comments on the value of economics concepts and thinking.

Gilpin is generally positive about the contribution of economics and technology to the understanding and reduction of environmental problems. He states his view in the Preface: ‘the tone of the book is essentially cornucopian; . . . most environmental problems are amenable to solution. . . . In the longer term, as in the past, substitution will continue to play a key role . . . Exhaustible resources will gradually be replaced over the next hundred years by more economically acceptable substitutes, with much reduced adverse environmental effects.’ He concludes the chapter on global warming optimistically: ‘There remains a strong argument for deferring major commitments for 30 years, allowing time for the development of economically competitive and ecologically safe and acceptable renewable technologies, while benefiting from inexpensive no-regrets policies.’ At the same time, he recognises limitations of economic policy instruments, for example, he points to the risk that uncritical use of transferable pollution credits can aggravate pollution problems at local hot-spots, despite meeting aggregate emission targets over a wider area.

The chapters range widely. Most of the environmental economics content is found in Chapters 1, 2, 6 and 7. Chapter 1 explains economics and environmental economics concepts and their relationship to environmental problems. Chapter 2 uses short biographies of historical individuals and organisations, some well known, such as Thomas Malthus and Rachel Carson, some less so, such as John Evelyn and *Resources for the Future*, to illustrate the history of environmental concerns and environmental economics from the 1600s to the present day.

Chapters 6 and 7 deal with the application of economics to environmental problem-solving. Chapter 6 reviews a large number of economic instruments for environmental protection operating in OECD countries, with comments

on their advantages and limitations. Chapter 7 focuses on techniques of economic analysis, beginning with a description of cost-benefit analysis and its applications to policy and then describing techniques for valuing non-marketed environmental goods and services.

The other chapters have less economics content. Chapter 3, entitled 'Institutions', provides brief descriptions of international organisations whose activities directly or indirectly impact on the world's environment. Unfortunately, despite its title, Chapter 3 provides almost no information about the behavioural rules and enforcement procedures by which these agencies attempt to change environmental outcomes.

Chapter 4 deals with the meaning and nature of sustainable development. Gilpin gives two reasons for wariness of restrictive 'sustainability' policies: first, the impossibility of predicting technological and preference changes over long time periods, and, second, that short-term interests of governments and other decision-makers typically dominate the interests of the future. In line with his generally optimistic views of economic substitutability and technological change, he argues that the present owes the future nothing beyond what is in the interests of present generations.

Chapter 5 describes the history, scope and achievements of statutory regulation of use of the natural environment in the United Kingdom, the United States and Australia, with particular attention to environmental impact assessment. Gilpin does not provide any explanation for the discrepancy between his positive assessment of most past command-and-control interventions and his scepticism concerning government intervention in pursuit of sustainability in the future.

Chapters 8, 9 and 10 survey current environmental issues: air, land and water pollution/degradation in Chapter 8, global warming in Chapter 9, and world population growth and its impact on humanity's quality of life in Chapter 10. While these chapters describe policy responses to environmental problems, Gilpin rarely comments on the practicalities and costs of implementing environmental policies, with one notable exception: Chapter 9 includes a quite detailed discussion of the results of ABARE modelling of the worldwide impacts of policies to reduce carbon dioxide emissions.

Gilpin's chapters involve large numbers of short sections and very extensive use of boxes in lieu of uninterrupted text. The 132 boxes are used for a variety of purposes: to explain concepts and techniques; to give quotes from prominent economists and environmentalists; to describe the historical evolution of ideas and environmental policies; to summarise the nature and conclusions of environmental conferences and reports, and to present case studies. This arguably makes the book more interesting and easier to read, but at the cost of emphasising quotes and lists of items to the detriment of

discussion and development of analytical concepts. Along with the interruption of the text by boxes, successive chapter sections frequently address distinct topics with few analytical connections. Thus the book has some of the character, and disadvantages for continuity of thinking, of an encyclopaedia. As a result, while it should be an interesting and informative read for laypersons, it cannot be recommended as introductory reading or a text for students who are expected to understand economics concepts and their application to environmental problems.

There are further reasons for recommending against use of the book by students: some economic concepts and techniques are imprecisely defined or inadequately explained; the text sometimes confuses problems and policy aims with policy instruments, and there are errors, or at least confusion, over the nature of economics and markets.

Important economic concepts which are imprecisely defined and not listed in the index include externalities, price elasticity, public goods and ecological economics. The listing of macroenvironmental problems in Box 1.10 mixes environmental problems with policy measures such as the implementation of the polluter-pays principle.

The book contains a number of instances of confusion over the nature of economics, markets and property rights. For example, Box 1.3 lists 15 functions of an economic system, including such dubious candidates as 'to control all emissions from activities to meet statutory requirements', and 'to promote fair trading in all markets'. On page 8, profit maximisation is said to be both essential to survival of firms, and not the primary concern when firm survival is at stake. Environmental catastrophes such as the *Exxon Valdez* are said to have occurred in situations with 'fully allocated property rights', without remarking on the necessity for economical rights enforcement if Coase's argument regarding the private resolution of disputes is to apply.

Given that the book is readable, and given its wealth of descriptive, especially historical, detail, it will be of value to general readers who want an overview of environmental issues. Also, because of Gilpin's understanding of basic economic concepts such as substitution and opportunity costs, his analyses and prescriptions on environmental issues are superior to those regularly emanating from conservationist and Green sources. All the more pity, then, that the book appears to have missed out on careful review and editing by someone knowledgeable in its declared subject area.

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Natural Resource and Environmental Economics, second edition, by Roger Perman, Yue Ma, James McGilvray and Michael Common. Published by Longman, Harlow, Essex, UK, 1999, pp. xxvi + 564, ISBN 0 582 36876 6, \$77.95.

In recent years concern about environmental problems has been increasing around the world. An indicator of this concern is the increase in the number of new textbooks relating to natural resources and the environment. The book reviewed here is an excellent addition to the choice available to researchers and students interested in this area. It is a comprehensive analysis of current environmental issues and can be used (as the authors suggest) for courses on natural resource economics, environmental economics and environmental policy. It is targeted at both upper level undergraduate and masters level students.

The first chapter examines the concepts of efficiency, optimality and sustainability. These concepts are important and are used throughout the book. The first section of the book (Chapters 2, 3 and 4) focuses on sustainability. The impact of economic growth on the environment is well explored using the Environmental Kuznets Curve framework. The interrelationships between population expansion and environmental stress are also examined in this first part. The chapter on the concepts of sustainability is well written, though it would have been useful to include some theoretical modelling of sustainability issues.

Chapters 5 and 6 deal with market efficiency and how in some cases markets do not work very well. This is particularly relevant for the provision of environmental goods and services. Often markets are missing and when they do exist, they are not always competitive and participants in these markets might operate under imperfect information. A discussion of cost-benefit analysis is included in Chapter 6, but I do not think it fits in very well here and perhaps should have been postponed until the valuation techniques are explained.

Chapters 7, 8, 9 and 10 examine the optimal resource extraction for non-renewable and renewable resources. The authors devote a separate chapter to forestry and optimal harvesting of timber. Chapters 11, 12 and 13 focus on the microeconomics of pollution control and discuss the instruments used for environmental regulation. There exists significant international evidence of the performance of emission taxes and tradeable pollution permit markets and some of it is included here. However, some of the examples are a bit dated. There are many more schemes now using these instruments.

The chapter on international environmental problems (Chapter 13) is an extremely important addition. Many of the environmental problems we encounter today need cooperative solutions involving a large part of the

world, for example, a critical feature of the global warming problem is that we require countries to coordinate and ratify international agreements on carbon emissions. The authors use game theory to explain how cooperative solutions can be developed to tackle international environmental problems. As all this involves interactions between sovereign states, the problem of who enforces these agreements becomes particularly difficult to solve. The authors discuss this problem of attaining cooperation. At the end of most of their chapters, they have information about further readings in related topics. In this chapter, they separate out the further readings into different subtopics (for example, further reading for global warming, acid rain, game theory, international coordination policy, trade, etc.). This is a very useful way of separating out the different fields and would be especially valuable for students.

The interaction between trade and the environment is a subsection of Chapter 13. There is a lot of literature on the impact of trade on the environment and whether harmonisation of international environmental standards is required to avoid the creation of 'pollution havens' in countries with less stringent environmental regulations. Given the increasing importance of this topic, this might have warranted a separate chapter.

Chapter 14 discusses the valuation of environmental goods and services. Different valuation techniques like travel cost models, contingent valuation and hedonic pricing are examined. This is a competently written chapter and identifies the key issues in this important area of environmental economics.

Chapter 15 deals with risk and uncertainty and how a significant majority of environmental problems could be irreversible. Hence relaxing the assumption of perfect information and reversible decisions could lead to results that are important from the environmental perspective. This could therefore direct us towards more cautious policy-making which would adopt the concept of safe minimum standard. Environmental performance bonds are suggested by the authors as a policy instrument that could enforce these safe minimum standards. This section could be improved by including discussion on how insurance contracts and securities markets can be used to provide the most efficient allocation of the risk involved with some environmental problems. In a simple framework this would involve first identifying the set of possible descriptions of collective risks (for example, frequencies of occurrence of climate change-related floods or droughts). Next this framework introduces securities whose payoffs depend on which description of the market is correct. Then depending on the correct description of the market, compensating agreements could be established between regions that are harmed and those not harmed.

The concluding chapters (Chapters 16 and 17) examine input-output accounting for the environment, a topic most books on natural resources

and the environment ignore. These chapters are detailed and provide a comprehensive review of the basic theoretical and empirical literature in this area. Their inclusion is a very important contribution by the authors.

It would be useful to add a chapter on the economics of biodiversity. In recent years, there have been several papers (some of it spearheaded by Martin Weitzman (1992) and his Noah's Ark problem), which focus on the issue of ranking of species and how to prioritise scarce resources for conservation. Some discussion of these models would be a good addition.

Overall, I think this is a very good book. It is an in-depth analysis of the important issues in the area of natural resource and environmental economics. As a textbook it is very useful and has discussion questions and problems at the end of each of the chapters.

Reference

Weitzman, M.L. 1992, 'On diversity', *Quarterly Journal of Economics*, vol. 107, pp. 363–405.

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Trade Liberalisation, Economic Growth and the Environment, by Matthew A. Cole. Published by Edward Elgar, Cheltenham, UK, 2000, pp. xi + 144, ISBN 1 84064 176 2, £45.

This study is a commendable attempt to find empirical support for the commonly held belief that trade liberalisation leading to economic growth damages the environment. Unfortunately, in the later chapters the author's enthusiasm leads him to make some ill-advised recommendations that are not entirely consistent with his own hard-won empirical results. So what begins as an even-handed assessment of an emotionally charged topic finishes with some familiar proposals on 'global governance' for the environment. The role of economics in the trade-environment nexus and in reconciling choices in policy formulation takes second place to the appeal of popular environmentalism.

Like others before him, the author tries to find environmental exemptions from trade rules in the GATT articles. But in 1947–48, when the GATT was constructed from the commercial chapter of the ITO (Havana Charter), the sole concern was to restore commercial relations and economic stability in face of spreading Soviet communism. After years of massive destruction,

protecting the environment did not feature in the drafting of GATT article XX.

The trade-environment conflict was a phenomenon of the Uruguay Round, although the issue had been raised fleetingly early in the 1970s. The tuna-dolphin and turtle-shrimp disputes (Chapter 3) were caused by US unilateralism, contrary to GATT principles on national treatment and non-discrimination. The outcries arose because the GATT rules were unacceptable to environmentalists. On the other hand, several members of the WTO Dispute Settlement Body criticised the Appellate Body's decision in the turtle-shrimp case because it contradicted accepted procedures. The Committee on Trade and Environment, established by the Uruguay Round final act, has served to emphasise differences among member countries and has done little to resolve them. Similarly, the portrayal of the GATT as successful in trade liberalisation without considering its weaknesses — failing to liberalise agricultural trade and allowing non-tariff barriers to be used against developing countries — has aggravated environmental damage.

The empirical analysis in Chapter 5 is valuable, though the conclusions bring no surprises. The explanations are given carefully and clearly, yet get misinterpreted in Chapters 6 and 7. For example, after showing that trade liberalisation does not influence any of the pollution variables (p. 74), the author still argues that trade is a serious cause of environmental damage via compositional and scale effects (p. 110). At several points it is claimed that 'trade liberalisation may prove environmentally damaging' (Chapter 7). Only in the final paragraph of the book does the author return to his conclusion in Chapter 5 that links between trade liberalisation, economic growth and the environment are uncertain.

The later chapters are disappointingly familiar, reiterating 'green' arguments for market interventions and 'global governance', without much attempt to link them to the earlier analysis. The 'clash of cultures' between trade experts and environmentalists over GATT rules, mentioned on p. 37, is not properly explained. Esty's argument that trade interests should be subjugated to environmental concerns is accepted uncritically from its first mention (p. 2) to its tenth and last (p. 119). This mantra is predicated on the need for trade restrictions to be available as an instrument of environmental policy (p. 21). No recognition is given to the 'second-best' nature of trade measures in the presence of any market distortion or to the effectiveness of tax-subsidy combinations to correct externalities. The intricacies of public choice theory also pass without a mention.

All these elements of economic analysis are relevant to the policy recommendations in Chapter 7. The proposals for changes in trade rules would have serious consequences for trade flows and economic growth, and ultimately for economic development and employment. The demand for

'green' national income figures to be used ignores the difficulties already revealed by the UN Statistical Office over definitions and monetary measurement of environmental assets and their depreciation. And the suggestion that the 'precautionary principle' should be introduced into the WTO would provide endless excuses for trade protection.

One of the strongest conclusions from the empirical analysis is that domestic policy-makers should tackle the environmental impact of the transport sector. Recent experience in OECD economies with increasing fuel prices has exposed the lack of commitment by environmental lobbies. Public protests about higher fuel prices have been strong but no 'green' groups have come forward to present increased prices as beneficial to the environment.

If domestic concerns about environmental damage do not give common cause in the community, what are the prospects for establishing a new international agency, such as a World Environmental Organisation (Chapter 7)? The problems of international agencies are demonstrated daily in the WTO, where achieving agreement on trade issues among the members is difficult; where non-government organisations demand to be heard; and where financial resources are rationed by participating governments. These and other problems surround 'global governance' but go unacknowledged in the discussion of policy alternatives. This brings into question how even the proposed amendments to the WTO might be achieved.

Throughout the preliminary assessment of the environmentalists' demands for access to trade measures and weakening of GATT/WTO powers, the author presents a balanced picture. Regrettably, like the empirical results, this is forgotten when he reaches the policy recommendations.

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