

Book Reviews

Economics of Ecological Resources: Selected Essays

Charles Perrings

Cheltenham: Edward Elgar, 1997

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Perrings' book is a well edited, and presented, integrated work based upon nine of his articles and book chapters published between 1989 and 1995. The three sections cover modelling interactions between ecological and economic systems, optimal resource use and environmental decision making. This collects together the author's works in order to provide an idea of his central preoccupations and insights.

An interesting question is why Perrings chose to have this collection appear under the *New Horizons in Environmental Economics* series when the content explicitly addresses, and throughout is preoccupied with, ecological economics. In fact the same publisher has a series on *Advances in Ecological Economics*. This raises the fact that a distinction is being drawn, by both the publisher and authors, between ecological economics and environmental economics. However, Perrings has also co-authored works with high profile ecological economists (e.g. Costanza), and contributed to edited volumes on the subject, so the reader may begin to wonder if there are any real distinctions.

The answer may lie in both the methodology and content. At the core of this book is a concern for using mathematical models to characterise or try to address different environmental issues. Every chapter involves an optimal control model (popular with resource economists since the 1970s) to cover various topics: conservation of mass, depletion of natural capital and sustainability, agricultural sector production, decision-making with incomplete information, environmental bonds, and biodiversity management. The tools and methodology are therefore in the neo-classical economics tradition.

Hence, a somewhat standard reduction of concepts to fit within a modelling frame is adopted. Under biodiversity management a non-instrumental value is discussed but this is equated to 'non-use values', more specifically bequest and existence values (p. 221). Non-instrumental values are defined by Perrings (following Karl-Goran Mäler) as merely separable parts of a utility function which can be accommodated within a preference function. As the Nobel economists Solow and Arrow noted in their 1993 report on contingent valuation, bequest and existence are best regarded as passive use values, with the operative wording being 'use'. The separation from 'direct use' by classification as a preference over passive use hardly equates to the concept of a non-instrumental value independent of 'any use'. Furthermore bequest and existence values are apparently meant to 'come close to capturing the value to current generations of the range of opportunities available to future generations' (p. 216). Elsewhere the morality of irreversible environmental damage is described as 'a set of weights on those outcomes reflecting the ethical judgement of the decision-maker as to the importance of the incidence and timing of those outcomes' (p. 192). Morality is then portrayed as just a preference weighting scheme. None of this is particularly satisfactory, leaving aside as it does the essence of the concepts and concerns which are being circumvented.

Despite this standard mathematical modelling and reductionism there are some interesting conclusions from Perrings' work. In taking key aspects of the critique of economics from the ecological literature, and trying to contain them within optimal control models, insights do arise. In collaboration with Mick Common, he has used models to argue 'that efficiency in the allocation of resources is neither a necessary nor a sufficient condition for the sustainability of resource use' (p. 238). The importance of protecting resilience is recognised because of the inability of markets and their prices to

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reflect when a system is approaching thresholds (p. 60). In the following chapter, there is a call for 'an ethical shift away from the values that privilege consumer sovereignty' as a necessary feature of ecological economics (p. 65). There the conclusion emphasises 'that an ecological economics of sustainability implies an approach that privileges the requirements of the system above those of the individual' and that doing so 'involves ethical judgements about the role and rights of present individuals' (p. 86). Perrings argues that ecological stabilisation requires placing physical bounds upon the allocation of economic resources (p. 241).

However, Perrings also believes the 'intellectual motivation of ecological economics is the perception that economic models need to be able to accommodate the complex time-behaviour of stressed ecological systems' (p. 233). His work is therefore largely limited to concerns over the representation of physical systems in economic models. He avoids venturing too far into environmental values, political economy, methodology or epistemology. This leads to an implicit uneasiness over the extent to which conventional economic approaches can be maintained.

Thus, contradictory messages appear in this book. Perrings notes that the relationship between economic and ecological systems 'raises normative questions that require better understanding of the moral or ethical framework of decision-making under uncertainty than has yet been developed (at least within economics)', and that this requires much more than 'the specification of the appropriate social welfare function' (p. xxviii). His models show the need for constraining economic systems, but fundamentally he seems to believe the required correction to models is within the grasp of conventional economics. Besides the need to fix boundaries on human behaviour, he regards ecological economics as no different from a standard economic approach because for him it can be summarised as: addressing efficiency and equity in resource allocation, relying on the price mechanism for allocation, addressing problems raised by open access common property resources and public goods (p. 242). If this were the entirety of the subject he might be correct but, as I have argued previously in this journal (Spash 1999) this is far from being the case.

Apparently Perrings shares a similar outlook to Costanza (1997) in regarding ecological economics as nothing more than a joining up of ecology and neo-classical economic models. He does indeed cite the mantra of 'developing a genuinely transdisciplinary approach' (p. xxviii), although the call for 'the integration of the underlying models of economic and ecological behaviour' would run the risk of going far beyond Costanza's non-territorial, co-operative, collaborative, and non-threatening ecological economics. Yet, the reader is told that, despite finding the price mechanism seriously flawed as an indicator (even on its own terms), society should continue to mainly rely upon prices for resource allocation, and, while economics ignores the pervasive ecological thresholds, problems with conventional economics can be corrected by adjustments to modelling approaches. There then seems to be some reluctance in this work to take the results to their logical conclusion. Apparently, at present, Perrings prefers to stay closer to the mainstream of economics and ecology and avoid becoming associated with 'people who are idiosyncratic – such as Daly and Boulding' (p. 243).

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References

- Costanza, R. 1997. *Frontiers in Ecological Economics*. Cheltenham: Edward Elgar.
Spash, Clive L. 1999. 'Ethical motives and charitable contributions in contingent valuation', *Environmental Values* 9(4): 453–79.