

## Foreword

Much of environmental change is driven by land use change. To some, the whole history of economic and social development reflects the exchange of one form of asset – ‘natural’ landscape – for another form of asset – man-made capital. Certainly, viewed from a global perspective, there is a one-to-one relationship between the decline of forested land and the increase in land devoted to crops and pasture. The factors giving rise to land use change are many and varied. But one of the most powerful is the comparative economic returns to ‘converted’ land relative to the economic returns to ‘natural’ land. In short, the issue is conservation versus conversion, and this is a conflict that is invariably resolved in the favour of conversion. This systematic erosion of the natural capital base is what worries environmentalists, a term I take to embrace anyone with the slightest modicum of concern about what humankind is doing to its own environment and its fellow species. Acting on that concern takes several forms, as everyone knows. Some want to lie down in front of the bulldozers, protest to their Members of Parliament, write to the newspapers, appeal to some moral principle or other. For the most part quietly, environmental economists have sought a different route. First, they observe that the bias towards conversion arises from all kinds of incentive systems, including, for example, subsidies to agriculture or monocultural forestry. Second, some of those incentive systems are far more subtle, and arise from the fact that many of the functions and services provided by natural systems have no market. At the end of the day, and like it or not, the financial balance sheet drives land conversion. It pays to convert land because the financial returns from conversion exceed those from conservation. The same bias works in reverse: existing land is not converted back to, say, woodland because some of the woodland benefits have no market.

But this is a result that derives from a perversion of economics – markets ‘fail’ to allocate resources properly because many of those resources have no price, even though they have potentially substantial economic value. Markets are the medium through which prices materialise. If there is no market in the carbon stored in forest

biomass, then markets will ignore the fact that the carbon has an economic value. In turn, that value derives from carbon dioxide being ‘fixed’ by growing biomass or from the fact that it is stored rather than released as carbon dioxide, the main greenhouse gas.

These observations define the first stage of the economic argument for correcting the economic system’s biases. This stage consists of ‘demonstrating’ that economic value resides in natural systems and estimating how much it is. The second stage is partly addressed in this volume, but it involves the redesign of institutions so that the ‘missing’ economic value is captured and represented as a financial flow. There are many examples of such capture mechanisms – environmental taxes, tradable pollution and resource permits, payments for ecological services, and so on. If there is an encouraging trend in the environmental world it is that, gradually, these capture mechanisms are expanding. Sometimes aided by policy initiatives, and sometimes spontaneous, they help shift the bias of conversion back towards more conservation than would otherwise be the case. In terms of this volume, Ian Bateman and his colleagues look at how farm incomes would change if only the non-market value of land (e.g. stored carbon, recreation) was ‘monetised’ and added to some of the market values from changed land use (e.g. timber).

Determining economic values has become ‘big business’ for environmental economists, and few can match the authors of this volume for ingenuity and application of the various techniques that have evolved for finding these values. But ‘valuation’ is expensive, or, at least, that’s how policy-makers like to see it. Millions may be spent on engineering design and legal fees in the context of policy or investment projects. A few tens of thousands of pounds on a valuation study often produces the cry that it is ‘too expensive’. In the absence of a saner approach, environmental economists have to live with the very limited resources allocated to valuation. That means that short-cuts are unavoidable. Results from one study have to be ‘borrowed’ and applied to another study area. But a much understudied issue is the reliability of making these ‘transfers’. Transferability requires that the conditions at the ‘new’ site should at least be similar to the conditions at the previously studied site. Often they are not. A few attempts have been made in the past to adapt transferred values to account for different site characteristics. With hindsight, it seems almost obvious that the logical way to handle variability in site characteristics is through geographical information systems (GIS). But it wasn’t done, and the dominant attraction of this volume is that it shows how to do it in the context of a detailed case study. The final analysis is a mix of ‘transfer’ estimates, modulated by the GIS, and validation of those transfers against actual data for their geographical focus, Wales.

Ian Bateman and his colleagues have successfully pushed back the frontiers in several ways. First, they have ‘married’ economic valuation with GIS. Second,

they have taken a very broad area for their application – the whole of Wales. Third, they have hypothetically reconfigured land use in Wales under the assumption that currently non-market land services and changed market values are integrated into farm incomes. This amounts to a cost-benefit analysis because they compare the costs of this change with its benefits. They are far more modest than I would be about the power and importance of cost-benefit analysis. It is fashionable to criticise the economic approach for all kinds of supposed ethical aberrations, but it has an ethical force of its own. It is democratic in that it allows individuals' preferences to rule rather than those of unelected 'stakeholders' and experts. It reminds us all the time that all decisions involve costs as well as benefits. While these may seem small claims, the reality is that actual decision-making all too often reduces to choices by an elite with little reference to cost. It is worth remembering that cost always reduces to a taxpayer's burden: there is no such thing as 'government money'. Finally, cost-benefit analysis is itself changing. Recent work on valuing the long distant future and on allowing for irreversibility and uncertainty (effectively making rigorous sense of the otherwise ill-defined 'precautionary principle') means that it is time to rewrite the cost-benefit textbooks. In so doing, we would overcome many of the criticisms advanced against it.

So, I would make greater claims for the approach adopted in this book than the authors make for it themselves! But what cannot be disputed is that we have a fine example here of economic valuation being put to an imaginative and unique use by some of the most exciting practitioners of the art of economic valuation.

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